



National Prescribing Service Limited

Evaluation Report No. 5

Progress of a national program for QUM

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1. Executive summary

The National Prescribing Service

The National Prescribing Service (NPS) commenced operation in mid-1998 as an independent incorporated organisation providing leadership and coordination in the quality use of medicines (QUM). The objectives of the NPS program are: to achieve improved health outcomes of the community by improving use of medicines through implementation of evidence-based strategies; national coordination of QUM activities and messages; and, savings to the Pharmaceutical Benefits Scheme (PBS).

The fundamental goal of the program is to achieve QUM, where this is considered to be judicious selection of management options, appropriate selection of medicines where a medicine is considered necessary, as well as safe and efficacious use of medicines. The NPS systematically targets therapeutic areas where there are known problems, or dilemmas, with prescribing, likely to result in sub-optimal health outcomes or possibly increased costs, and where education and information may have a positive impact.

NPS evaluation reports

NPS evaluation reports are produced six-monthly. At the end of each financial year, a comprehensive overview of the reach and impact of NPS programs is produced. At the end of each calendar year, a report focusing on one or more 'theme(s)' is produced.

Presentation of this report

This 5th Evaluation Report provides an update of the progress of the NPS since its commencement in mid-1998. The report begins with an overview of the NPS: the services it provides for health professionals and consumers; the therapeutic areas addressed to date; the multifaceted nature of program delivery; and the evidence for strategies employed.

Detail on the reach and impact of NPS programs to date is then provided. This includes information on the type, extent and timing of strategy implementation including figures on GP, pharmacist and consumer participation across a range of activities and therapeutic topics. The current report concludes by looking at the evaluation questions that still need to be answered.

A national program for QUM

The pioneer therapeutic area targeted by NPS was Helicobacter eradication therapy, with the first interventions implemented in December 1998. In the three and a half years since December 1998, to June 2002, the NPS has targeted 19 therapeutic areas with repeat implementation in four.

Reach of services: participation in NPS activities

Regular personalised feedback on prescribing: A total of 18 *Prescribing Practice Reviews* (PPRs) have been mailed by the NPS to an average of approximately 20,000 health professionals on each occasion.

Growing popularity of national GP case studies: The NPS has offered 21 GP case studies and 21,701 health professionals have completed these Australia wide. From attracting just 10 participants in the first national GP case study, the NPS now averages approximately 1,100 participants each time a national GP case study is offered.

Increasing participation in national GP clinical audits: The NPS has offered nine nationally coordinated GP clinical audits to date. Over 13,000 NPS audit cycles have been completed with an average of around 1,500 participants for each national audit.

Broad delivery of messages as well as repeat participation: Over time more GPs are participating in all NPS core activities (education visits, clinical audits, case studies and division case study group discussions). A total of 11,843 individual GPs have participated in at least one NPS activity to date (close to 70% of vocationally registered GPs at a national level), with an average participation in four activities.

GP participation across a range of topics: The NPS has to date targeted 19 different therapeutic areas. Programs on New drugs and Hypertension have each been offered on two occasions, NSAIDs three times and Antibiotics four times. Just under 9,000 individual GPs have participated in at least one NPS activity on antibiotics. Close to 6,000 GPs have participated in at least one activity on Depression, over 5,500 on Hypertension and over 4,500 on Type 2 diabetes.

Ability to support local delivery of national QUM messages: The NPS currently has contracts with close to 90% of the 123 divisions of general practice throughout Australia with over 100 facilitators employed to deliver NPS key messages at a local level.

Locally coordinated activities through NPS contracted division: Educational visits continue to be the most popular method for local delivery of NPS messages. Just under 12,000 visits have been completed. Division hosted small group discussion of nationally developed case studies and small group discussions of clinical audit feedback continue to grow in popularity. Participation in nationally developed and locally run clinical audits as well as locally developed and locally run clinical audits is relatively low; just over 400 GPs have participated in each of these activities.

Growing pharmacist participation: Three self-audits have been offered to pharmacists as well as five pharmacist specific case studies. Participation rates in these activities are encouraging for an emerging program with close to 500 pharmacists (5% of the community pharmacy workforce) in total for each activity, but continue to increase. Importantly, the participation by pharmacists to date is comparable to the participation by GPs in early activities offered by the NPS.

Independent information for health professionals: In the two years to 28 June 2002, the NPS Therapeutic Advice and Information Service (TAIS) has received just under 10,000 calls. Over 80% of the calls received by TAIS have been from GPs and pharmacists. The majority of these calls involved queries regarding drug interactions (23%), adverse drug reactions (22%) and therapeutic strategies (11%).

NPS News is mailed every two months to approximately 18,000 GPs, 12,000 Pharmacists and 29,000 Other Medical Practitioners (OMPs) Australia wide. To date 22 issues of *NPS News* have been distributed.

Australian Prescriber, the national journal of drugs and therapeutics is published every two months and distributed together with *NPS News* to approximately 45,000 Australian health professionals. *Australian Prescriber* was one of the first medical journals in the world to make its full text freely available on the Internet. This has been a successful initiative with more than 300,000 hits on the web site each month. The website has increased the international exposure of *Australian Prescriber*.

Incentives for quality care: The NPS continues to manage point allocation made under the Quality Prescribing Initiative (QPI) of the Commonwealth Government's Practice Incentive Program (PIP). QPI payments are paid to general practices in which the GPs participate in activities that are designed to foster QUM. In the 2001 PIP year (1 May to 30 April) 1,125 practices received QPI payments. In the 2002 PIP year this figure increased to 1,211 practices.

Services for consumers: Patient materials developed to date include: symptomatic management of upper respiratory tract infections (URTIs); withdrawal from sedatives and sleeping tablets; patient self-management of heart failure; a tool to help GPs review patient medication; and, a non-prescription pad for managing dyslipidaemia through dietary and lifestyle changes.

The NPS' national consumer campaign 'Common Colds Need Common Sense' was implemented in June to August 2001 and is again being run in winter 2002. In the 2001 campaign, 73 organisations undertook over 200 community education presentations to over 2,500 consumers.

Many NPS facilitators actively involve consumers when delivering QUM messages. 14 activities targeting more than 3,700 consumers had been undertaken in 19 Divisions across Australia to the end of March 2002. Over 8 different therapeutic topics have been covered by these divisions, with most on medication review and / or use of antibiotics in URTIs (78% of the consumer audience).

A national prescribing curriculum: The structure of the web-enabled, interactive curriculum is complete and available to senior medical students in all Australian medical schools. All 12 problem based web-interactive modules are available online. In 2002, it is expected that nine out of the eleven Australian medical schools will use the curriculum in some form.

Disseminating a QUM message to the wider audience: NPS staff, facilitators, Board, and working group members continue to actively disseminate QUM messages and principles via participation in local, state, national and international conferences.

Impact of services: changing prescribing

The NPS Evaluation Program is at early stages of being able to evaluate programs in terms of their impact on prescribing. As such, the focus of this report is on detailing the methods rather than the results of the impact evaluation. Future Evaluation Reports will present the results of the impact evaluation in detail.

The NPS evaluation makes use of a range of complementary data sources to achieve a comprehensive answer. Consistency in the findings from multiple data sources, will add to confidence in the evaluation conclusions; while any inconsistencies may provide valuable insight into the exact nature of the program's effects. Key sources of data include a number of large government-based datasets relating to prescribing, as well as data derived from the use of computerised prescribing software in general practice. Purpose-designed surveys of several different target groups also provide important sources of data to answer key evaluation questions as do key informant interviews and monitoring the system changes that occur.

The NPS evaluation priorities in the short term should be to develop and promote our expertise in data extraction, interpretation and presentation from GP desktop systems and to provide appropriate training for NPS facilitators on how to use this data across all NPS topic areas. This work should commence immediately in both Enhanced Divisional Quality Use of Medicines (EDQUM) and non-EDQUM topic areas.

The NPS will continue to develop more formal alliances with the Drug Utilisation Sub-committee (DUSC) to avoid duplication in evaluation and to achieve maximum synergy between the work of both DUSC and NPS.

Use of Antibiotics: Preliminary analysis of prescribing rates for cefaclor and roxithromycin, using aggregate data from the HIC website, shows a reduction in the expected winter peak for both of these drugs following NPS interventions to reduce inappropriate prescribing of antibiotics for uncomplicated upper respiratory tract infections (URTIs).

NSAIDs (including Cox-2 selective NSAIDs): Previous analyses have shown a reduction in the use of the higher risk NSAIDs.

Outcome of services: savings to the PBS

An estimated \$44,705,587 of PBS costs has been saved by the NPS in the three-year period following the initial budget announcement in 1997-98. In these first three years of operation, the NPS clearly satisfied the Commonwealth's requirement of annual savings amounting to \$14.255 million.

The current contractual agreement with the Commonwealth requires the NPS to deliver savings of \$111million to the PBS over the four-year funding period. Robust methods for estimating these financial savings are currently being developed and refined. This remains a high priority for the Evaluation Team. It is anticipated that the outcomes of the economic evaluation for the period July 2000 to June 2001 will be finalised by the end of the current calendar year and then available for the next Evaluation Report.

Reflections on the early years of the NPS

From mid-1998 to June 2002, the NPS successfully mobilised many avenues to influence GP prescribers. Ninety percent of Australian GPs receive regular personalised feedback on their prescribing in targeted areas, case studies have been used by over 21,000 health professionals, 13,500 audit cycles have been completed and 107 Divisions are now contracted to deliver NPS education programs at a local level. Close to 12,000 individual GPs have participated in at least one NPS activity.

Complementing these programs has been the production and dissemination of multiple sources of independent evidence based information (*TAIS*, *NPS News* and more recently the *Australian Prescriber*) and the creation of financial incentives to foster the uptake of QUM educational activities among GPs (e.g. Quality Prescribing Initiative under the Practice Incentive Program).

This evaluation report demonstrates that in just three years the NPS has become an accepted and trusted organisation making important contributions to health professional and consumer education in therapeutics and most importantly improving medication use in this country.

Methodologically, the NPS has developed systems to monitor the reach of messages to GPs and pharmacists, the range of activities undertaken and the types of local programs delivered by divisions of general practice. Regular consumer and GP surveys have begun to provide important insights on how the NPS can further tailor its programs to move these groups towards a QUM perspective. The NPS will soon finish developmental analyses of the datasets that can be used to measure the longer-term epidemiological and economic effects of NPS programs, and will soon survey pharmacists on how useful its services and activities have been. By early 2003, information will be available on the capacity, at a regional level required to implement NPS initiatives.

From an evaluation perspective, NPS has "filled in" some parts of the measurement spectrum. There is still little understanding of the role of NPS with non-GP prescribing groups (e.g., pharmacists, specialists and nurses), and this will be a priority for the next 18 months work. Finally, the issue of linking prescribing changes to health outcomes will continue to challenge both the NPS Evaluation Working Group and the group's key collaborators including, other working group members, NPS staff, divisions of general practice, and facilitators.

2. A national program for QUM

The National Prescribing Service

The National Prescribing Service (NPS) is a non-profit organisation independent of government and the pharmaceutical industry, with the goal of improving the health of Australians through appropriate and cost-effective prescribing of medicines.

A service organisation

The NPS was launched as and remains a service organisation. The NPS provide access to independent, balanced, critically appraised information on medicines to GPs, other medical specialists, medical students, pharmacists, other health professionals and consumers. The NPS is also involved in supporting and fostering training in the area of therapeutics.

The service delivery of the NPS is provided in two arms: QUM services for health professionals; and, QUM services for the community. These arms reflect the priorities identified in the national consultation process that helped shape the design and operation of the NPS. An overview of these programs is presented below. More detail can also be found in the NPS Strategic Plan 2001.

QUM services for health professionals

Education and Quality Assurance Program

Formerly called the Prescribing Intervention and Feedback Program, this area of service delivery is core NPS business and the largest area of attention and activity. The aim of this program is to improve the quality of prescribing and use of medicines in target therapeutic areas.

The strategies of this program are implemented nationally by NPS staff or locally on a contract basis through divisions of general practice (Table 2.1). For local programs, divisions of general practice are provided with funding to employ a 'facilitator' to implement relevant QUM activities (and are expected to meet certain contractual obligations such as a specified number of GPs within their division taking part in NPS activities within a certain period).

Field Support and Training Program

The aim of this program is to support effective delivery of local NPS programs delivered through the funding to the divisions of general practice mentioned above. This is achieved by comprehensive facilitator training and support activities (run through the National Office) that to date include:

- orientation
- group skills workshops
- educational visiting workshops
- teleconference networks
- topic briefings
- annual forum and / or seminar

NPS staff regularly visit divisions of general practice throughout Australia to ensure consistency of program implementation and message delivery and to assist facilitators with specific problems or tasks. In addition, a state-based mentor program exists in Queensland, which provides clinical support at the local level for NPS facilitators.

Table 2.1 NPS Education and Quality Assurance Program activities

Nationally coordinated activities	Locally coordinated activities
<p>For GPs</p> <ul style="list-style-type: none"> ▪ <i>Prescribing Practice Reviews</i> (PPRs) ▪ Case studies ▪ Clinical audits <p>For other medical specialists</p> <ul style="list-style-type: none"> ▪ <i>PPRs</i> ▪ Recruitment as opinion leaders <p>For pharmacists</p> <ul style="list-style-type: none"> ▪ Pharmacy letter ▪ Self-audits of over-the-counter (OTC) prescribing ▪ Medication review <p>For hospital-based health professionals</p> <ul style="list-style-type: none"> ▪ Drug use evaluations 	<p>For GPs</p> <ul style="list-style-type: none"> ▪ Educational visiting ▪ Small group, peer review activities ▪ Case studies ▪ Case based meetings ▪ Medication review

Curriculum Development and Implementation Program

The aim of this program is to improve the prescribing education provided to medical, pharmacy and other health profession students and emerging practitioners. The focus is on providing a web-enabled, interactive curriculum, which is problem-based and supported by written materials, to all Australian medical schools.

Pharmaceutical Decision Support Program

The main aims of this program are:

- To facilitate access to best evidence and decision support materials at the point of decision making for all doctors and pharmacists.
- To facilitate electronic integration and delivery of quality assurance and educational activities.

Independent Information

Part of the NPS remit is to provide independent, balanced, evidence-based information about medicines to health professionals. The principal activities in this area include:

- Preparation and dissemination of *Australian Prescriber* - an independent review published every two months that provides critical commentary on therapeutic topics for health professionals.
- Preparation and dissemination of *NPS News* – a news letter mailed every two months to approximately 18,000 GPs, 12,000 pharmacists and 29,000 other medical practitioners (OMPs) Australia wide.
- Maintenance of the NPS website.
- Management of the TAIS phone service – a national medicines and therapeutic information service primarily targeted at community-based health professionals.

QUM services for the community

Community Education Program

The aim of this program is to inform the general community and influence its attitudes to QUM. Media releases, radio and television interviews, newspaper articles and advertisements are prepared routinely. In addition, a full-scale consumer campaign has been implemented during the winter months of 2001 and 2002. This campaign, 'Common Colds Need Common Sense', was implemented with the aim of informing consumers about how to manage coughs, colds and flu without using antibiotics. The consumer focus of the NPS aims to actively identify, develop and implement strategies that empower consumers with the awareness, knowledge and skills to make informed choices about their health. Importantly, these strategies are designed to compliment and support the messages provided to health professionals in the Education and Quality Assurance Program.

Independent Information

In September 2002, a phone-in medicines information service for consumers will begin operation. This service will provide independent, evidence-based information for consumers on medicines as well as a referral mechanism back to primary health professionals.

Targeted therapeutic areas

The NPS systematically targets therapeutic areas where there are known problems, or dilemmas, with prescribing, likely resulting in sub-optimal health outcomes and possibly increased costs, and where education and information may have a positive impact. In addition to targeting specific areas, general QUM concepts and principles are also promoted to clinicians and the general community, including the use of medication reviews, principles for the adoption of new drugs, and awareness of possible drug interactions.

Selection of NPS topics

The process by which NPS topics are selected and the extent of the program content are determined by:

Annual NPS planning days, to which all member organisations, working group members and other experts are invited. The general direction of the organisation is planned and a range of topics identified.

The Prescribing Intervention Working Group selects the topics for the year, and advises on the issues to be addressed and prescribing interventions to be utilised.

Feedback from individual GPs, NPS facilitators and divisions is also incorporated into these processes. Other sources such as NPS indicator research, drug utilisation studies, issues raised by DUSC or the Pharmaceutical health and Rational use of Medicines (PHARM) sub-committee or other expert QUM bodies are also used where appropriate. Key messages are distilled following a review of the literature.

Specific criteria for topic selection are:

- The therapeutic area is a priority for GPs or other target group(s).
- The information will assist in providing best patient care (ability to make an impact, ability to affect patient outcomes).
- New information is available.
- Systems issues which will improve patient care.
- Evidence of therapeutic problem, variation in prescribing, adverse outcomes.
- Potential impact on PBS expenditure.
- Data are available to support delivery of the message.
- Evidence exists to guide better practice.
- New drug.
- Ability to link with parallel programs.
- Presence of therapeutic uncertainty or controversy.

Evidence-based strategies

A great deal is known about the effectiveness of interventions that have been shown to change behaviour when implemented in a sustained fashion at a national or local level (Table 2.2). The NPS has drawn on this evidence in developing a comprehensive range of interventions: educational visiting (academic detailing); clinical self-audits; prescriber feedback combined with specific written educational messages; peer group meetings; and, case studies that facilitate problem-based learning (PBL) for individuals or groups. Opinion leaders are also used to deliver and endorse key messages when possible.

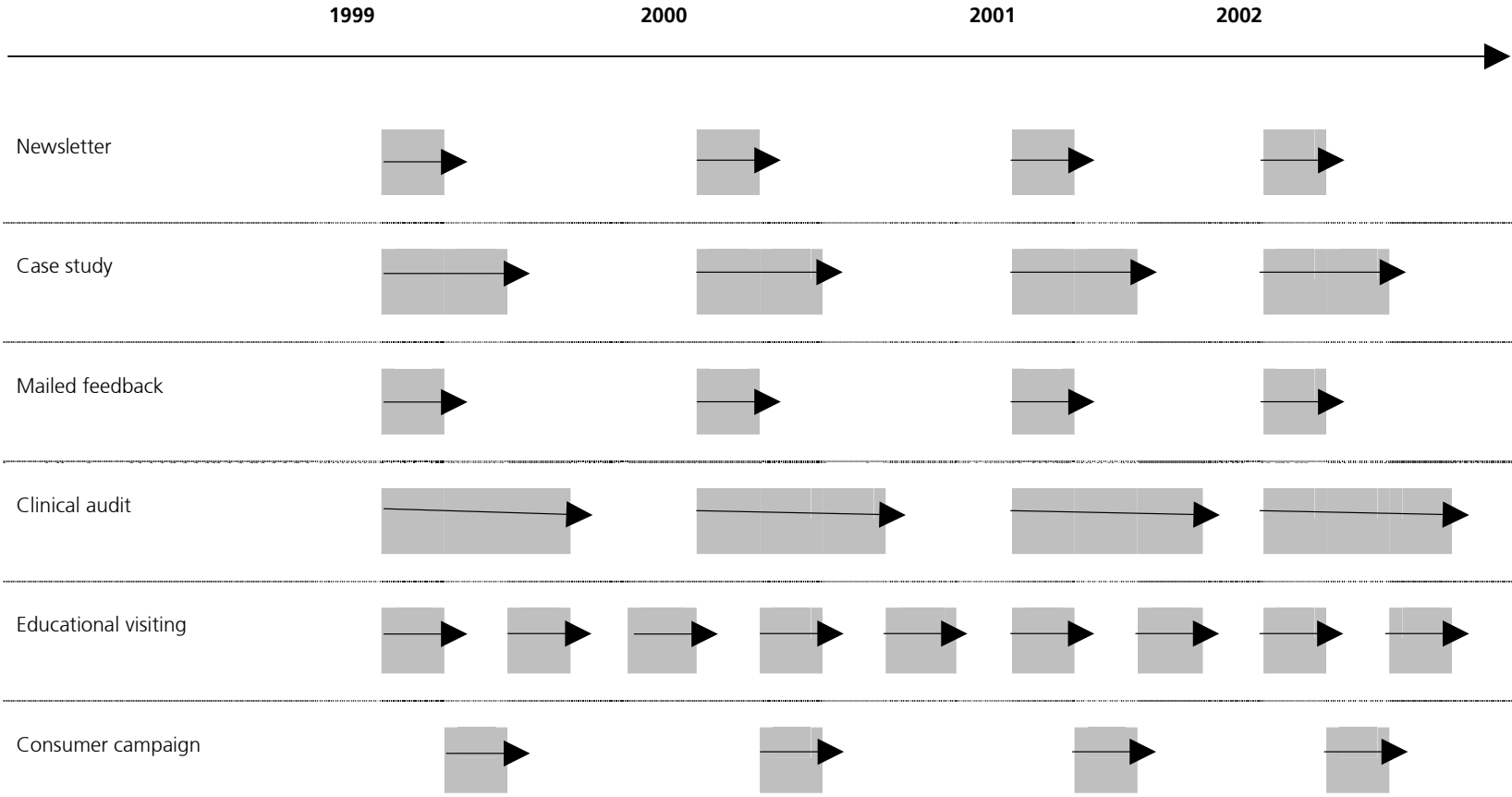
Table 2.2 Evidence-base for prescribing interventions employed by the NPS

Educational visiting (academic detailing)	Has shown in a series of studies to improve prescribing ¹ and in one study to improve patient outcomes ² .
Clinical audit	Both computer-assisted and manual clinical audit have been shown to improve prescribing behaviour ^{3,4} .
Mailed feedback of prescribing data	Mailed feedback alone was not found to change behaviour ⁵ but feedback accompanied by specific recommendations was more successful ⁶ .
Interactive peer group meetings	An education program involving audit-feedback in peer groups saw larger changes in prescribing for acute situations and smaller changes for chronic therapy ⁷ .
Problem-based learning using case scenarios	A study of problem-based, face-to-face, small-group education on drug treatment found sustained improvement in prescribing of antibiotics ⁸ .
Opinion leaders	Local opinion leaders were shown to accelerate adoption of effective treatments in general practice where best practice was clearly defined by evidence ⁹ .
Written material	Has shown little or no effect alone but is additive with other interventions ¹⁰ .
Guidelines	Locally adapted and implemented guidelines have been shown to change the prescribing behaviour of doctors ¹¹ .
Computer-assisted prompts	Computer reminder systems have been shown to have varying effect on an intervention in preventive care ^{12,13} .

Intensity of programs

The plan of the Education and Quality Assurance Program for Health Professionals is to introduce two new topics annually while repeating up to two previous topics. This process creates an opportunity to provide resources on a range of topics whilst also repeating messages for sustained effects. Four of the six editions of *NPS News* are aligned to these topics. Two of the four topics each year are identified as full programs in which a comprehensive group of strategies is used and numerous activities for the participation of health professionals are made available. Program implementation is multifaceted. The NPS antibiotics program, for example, has been implemented at a national level over four consecutive years (Figure 2.1). The activities presented in this figure are often reflected locally in divisional activities as well.

Figure 2.1 Time-line of interventions for Antibiotics *



* Shaded areas indicate when the intervention was implemented.

3. Intervention programs

Early beginnings to a comprehensive national program for QUM

The pioneer therapeutic area targeted by NPS was Helicobacter eradication therapy, with the first interventions implemented in December 1998. In the three and a half years December 1998 to June 2002, the NPS has targeted 19 different areas with repeat implementation in four (Table 3.1, Figure 3.1).

Table 3.1 NPS therapeutic topics (December 1998 to June 2002)

Topic	Start date *
1. Helicobacter eradication therapy	December 1998
2. NSAIDs	February 1999
3. Antibiotics	April 1999
4. Benzodiazepines	June 1999
5. COPD	August 1999
6. Managing hypertension	October 1999
7. New drugs	December 1999
8. Medication review	January 2000
9. COX-2 selective NSAIDs	April 2000
10. Management of heart failure	April 2000
11. Antibiotics	June 2000
12. Managing depression	August 2000
13. DMARD	September 2000
14. Hormone replacement therapy	October 2000
15. Polypharmacy	December 2000
16. Management of dyspepsia	February 2001
17. Antibiotics	April 2001
18. Issues in psychogeriatrics	June 2001
19. Managing type 2 diabetes	August 2001
20. Allergic rhinitis	September 2001
21. Management of hypertension – an update	September 2001
22. COX-2 selective NSAIDs	October 2001
23. New drugs	December 2001
24. Managing dyslipidaemia	February 2002
25. Antibiotics	April 2002
26. Managing drug and alcohol problems	June 2002

* Date of first intervention for therapeutic topic.

Figure 3.1. At a glance: nationally coordinated NPS activities for health professionals and the community (December 1998 to June 2002)

NPS News

1. Helicobacter eradication therapy
2. NSAIDs
3. Antibiotics
4. Benzodiazepines
5. COPD
6. Managing hypertension
7. New drugs
8. Medication review
9. Management of heart failure
10. Antibiotics
11. Managing depression
12. Hormone replacement therapy
13. Polypharmacy
14. Management of dyspepsia
15. Antibiotics
16. Issues in psychogeriatrics
17. Managing type 2 diabetes
18. COX-2 selective NSAIDs
19. New drugs
20. Managing dyslipidaemia
21. Antibiotics
22. Managing drug and alcohol problems

PPRs

1. Helicobacter eradication therapy
2. NSAIDs
3. Antibiotics
4. Benzodiazepines
5. COPD
6. Managing hypertension
7. Medication review
8. Management of heart failure
9. Antibiotics
10. Managing depression
11. Management of dyspepsia
12. Antibiotics
13. Management of hypertension – an update
14. Hormone replacement therapy
15. Type 2 diabetes
16. COX-2 selective NSAIDs
17. Managing dyslipidaemia
18. Antibiotics

GP case studies

1. Helicobacter eradication therapy
2. Otitis media
3. Benzodiazepines
4. COPD
5. New drugs
6. Management of hypertension
7. Medication review
8. Management of heart failure
9. COX-2 selective NSAIDs
10. Managing depression
11. Hormone replacement therapy
12. Polypharmacy
13. Management of dyspepsia
14. Management of sinusitis
15. Issues in psychogeriatrics
16. Managing type 2 diabetes
17. COX-2 selective NSAIDs
18. New drugs
19. Managing dyslipidaemia
20. Managing bronchitis
21. Managing problem drinking

Nationally coordinated GP clinical audits

1. Antibiotics
2. Managing hypertension
3. Antibiotics
4. Antibiotics in medical director
5. Managing depression
6. DMARD (for rheumatologists)
7. Antibiotics
8. Managing type 2 diabetes
9. Management of hypertension – an update
10. Managing dyslipidaemia

Consumer material

Symptomatic management pad for URTIs
 Withdrawal from sedatives and sleeping tablets
 Patient self-management of heart failure
 A tool to help GPs review patient medication
 Diet and lifestyle management pad

Pharmacy letters

1. NSAIDs: minimising the risk
4. Management of allergic rhinitis
5. Managing the common cold

Pharmacist self audits

1. OTC supply of NSAIDs
2. OTC management of allergic rhinitis
3. OTC management of the common cold

Pharmacist case studies

1. Cough and hypertension
2. Symptomatic management of URTIs
3. Management of dyspepsia
4. COX-2 selective NSAIDs
5. Dyslipidaemia and coronary heart disease

Program objectives and key messages

All therapeutic topics addressed by the NPS are designed around targeted key messages and identified objectives. The key messages for recent programs on managing dyslipidaemia and use of antibiotics in upper respiratory tract infections are provided as examples.

Managing dyslipidaemia (February 2002) *
<p><u>Key messages:</u></p> <p>Lipid-modifying therapy is diet and lifestyle changes initially. If initial response is inadequate, combine diet and lifestyle changes with drug therapy.</p> <p>Initiate lipid-modifying therapy in anyone who has angina or has had a myocardial infarction.</p> <p>Assess absolute risk of a cardiovascular event in those without coronary heart disease (CHD) and initiate lipid-modifying therapy when risk is 10-15% or higher in the next 5 years.</p> <p>Results from clinical trials were achieved with levels of compliance that you patients may find difficult to match in the 'real world'.</p> <p>The safety of long-term (10-20 year or longer) drug use remains to be established; in primary prevention, consider the risks of long-term drug therapy in the context of achievable benefit.</p>

* Start date of first intervention for therapeutic topic.

Use of antibiotics in upper respiratory tract infections (April 2002) *
<p><u>Key messages:</u></p> <p>Where antibiotics are used for self-limiting upper respiratory tract infections (URTIs), their selection is improving.</p> <p>Too many patients, however, are still being prescribed antibiotics; 50% of patients who present with an URTI receive an antibiotic.</p> <p>Educate patients on symptomatic management of respiratory tract infections.</p> <p>Most urinary tract infections can be treated empirically with first-line drugs.</p>

* Start date of first intervention for therapeutic topic.

4. Process evaluation

The approach taken in the evaluation of NPS is broad ranging and comprehensive, incorporating process evaluation, descriptive analysis of important system and environmental variables, and rigorous hypothesis testing (impact and outcome evaluation around specific objectives and goals). The following sections provide detail on these areas.

Process evaluation involves monitoring the existence, distribution or uptake, and relevance, acceptability of and satisfaction with NPS programs. It is concerned with what happens during the actual implementation of the program – content and delivery, including costs, and how the NPS was perceived by both target audiences and those involved in its delivery. Process evaluation conducted throughout program delivery provides information that can be used to improve the program itself, and subsequent to program completion, is often invaluable in helping to understand why various aspects of the program did, or did not, achieve the type and / or extent of change anticipated. Process evaluation is also invaluable for future program planning.

In the NPS Evaluation Plan four main domains of ‘process’ are addressed: reach or program coverage; satisfaction with / acceptability of the program; implementation of the program (including the costs involved); and, the quality of materials within the program. The focus of the current Evaluation Report is on the first of these and includes GP, pharmacist and consumer participation across a range of activities and therapeutic topics. Future Evaluation Reports will address the additional domains of process evaluation.

Distribution of Prescribing Practice Review (PPR)

Where it is considered that prescribing feedback is likely to be beneficial for improving use of medicines, all GPs and relevant specialty groups are mailed confidential feedback on their personal prescribing behaviour. The Prescribing Practice Review data are taken from the Health Insurance Commission (HIC) pharmacy claims database. Personalised data are presented in comparison with doctors located in similar geographical areas. To date, 18 PPRs have been mailed by the NPS to an average of approximately 20,000 health professionals on each occasion (Appendix 2, Table A2.1).

GP participation across core national activities

Popularity of national GP case studies

GP case studies are published in most editions of *NPS News*. These case studies provide brief patient scenarios on which GPs and other health professionals are invited to report their ideal management plan. To date, NPS has offered 21 GP case studies and a total of 21,071 of these have been completed by health professionals Australia wide (Appendix 2, Table A2.2). After attracting 10 participants to the NPS first national GP case study, the NPS now averages approximately 1,100 participants each time a national GP case study is offered.

Increasing participation in GP clinical audits

GP clinical audits provide an opportunity for GPs to reflect and report on their management of patients with a particular condition targeted by the NPS. The main clinical audit cycle has four steps: needs assessment; identification of standards of management and best practice; data collection and analysis (on 20 patients); and, review of results and implementation of change if necessary. An optional fifth step, in which progress can be monitored via a repeat audit, is also offered. The NPS has offered nine nationally coordinated GP clinical audits to date. Over 13,000 NPS audit cycles have been completed with an average of around 1,500 participants each time a national clinical audit is offered (Appendix 2, Table A2.3).

Broad delivery of messages as well as repeat participation

Over time more GPs are participating in all NPS core activities (educational visits, clinical audits, case studies, and division case study group discussions) (Figure 4.1). The participation rates of individual GPs across core NPS activities is also high; a total of 11,843 GPs have participated in at least 1 NPS activity to date, close to 70% of vocationally registered GPs at a national level (Figure 4.2). Of these, the average number of NPS activities participated in is 4.1 (range 1-27 activities).

GP participation in at least one NPS activity are spread across all states (Table 4.1). Similarly, with perhaps the exception of moderately accessible areas (small rural towns), the reach of GP participation in NPS activities extends across geographical areas (Table 4.2). Nationally, 14% of GPs practice in moderately accessible areas, however, only 3% of GP participation in NPS activities is undertaken in these areas.

Figure 4.1 GP participation in core NPS activities to 30 June 2002

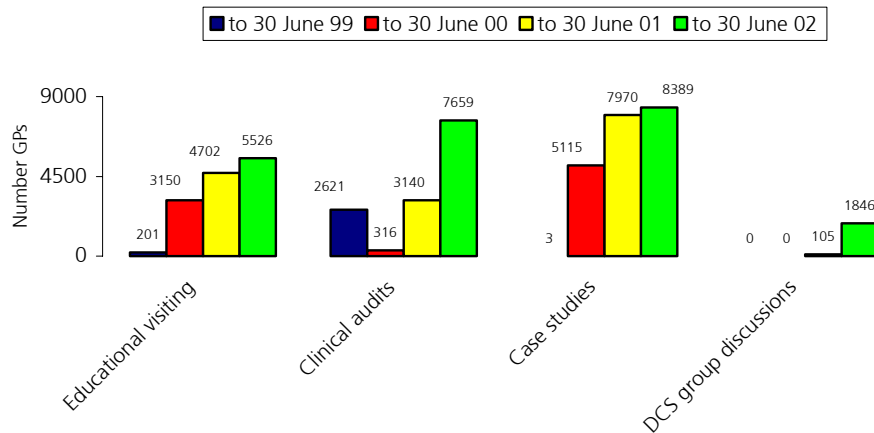


Figure 4.2 Number of individual GPs who have participated in NPS activities to 30 June 2002

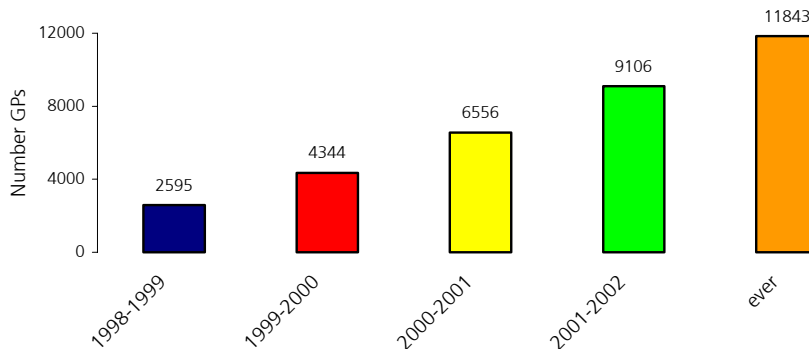


Table 4.1 Unique GP participation in core NPS activities by state (1 July 1998 to 30 June 2002)

State	Educational visit	Clinical audit	Case study	DCS group discussion *
NSW + ACT	2068	2428	1870	359
NT	54	40	25	13
QLD	1293	1267	1183	159
SA	1003	508	432	18
TAS	299	222	199	86
VIC	1407	1994	1689	592
WA	556	498	455	350
Total	6680	6957	5853	1577

* DCS group discussion refers to a division based small group discussion of a GP case study

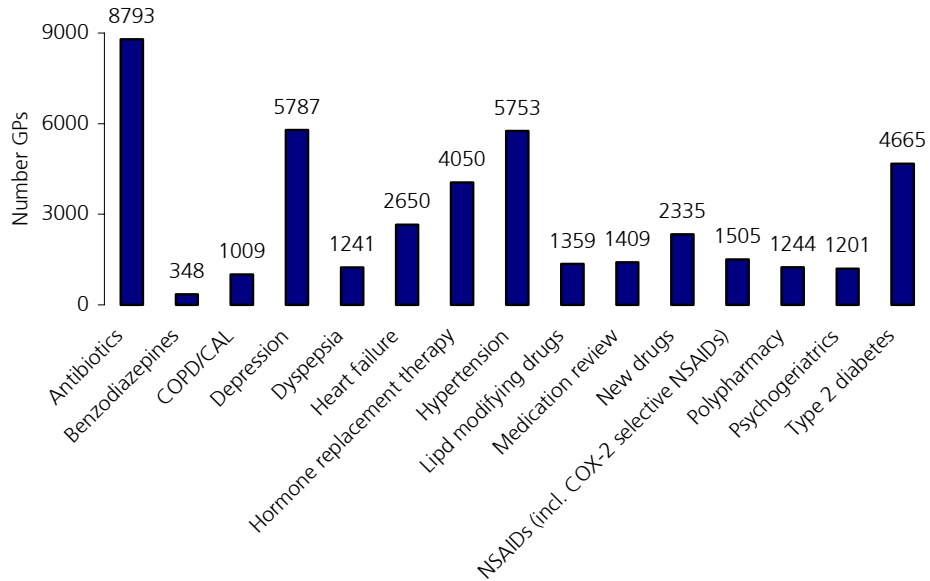
Table 4.2 The geographical distribution of GPs who have participated in at least one NPS activity

	GPs who have participated in at least one NPS activity (%)	National GPs practicing in areas of varying accessibility (%)
Highly accessible	84	70
Accessible	10	14
Moderately accessible	3	14
Remote	1	1
Very remote	1	1

GP participation across a range of topics

As reported above, the NPS has to date targeted 19 different therapeutic areas. Programs on new drugs and hypertension have been offered on two occasions, NSAIDs three times and antibiotics four times. Almost 9,000 individual GPs have participated in at least one NPS activity on antibiotics (Figure 4.3). Close to 6,000 GPs have participated in at least one activity on Depression, 5,753 on Hypertension and 4,665 on Type 2 diabetes.

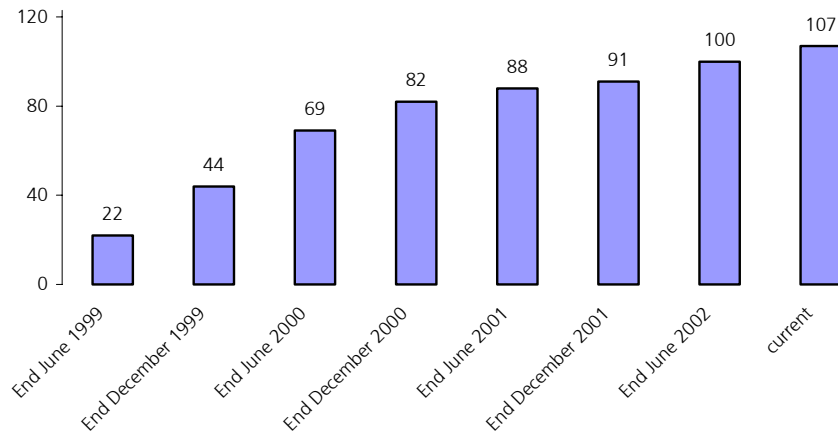
Figure 4.3 Number of unique GPs who have participated in at least one activity across therapeutic topics



Ability to support local delivery of national QUM messages

The NPS currently has contracts with close to 90% of the 123 divisions of general practice throughout Australia (Figure 4.4). Over 100 facilitators are employed by these divisions to deliver NPS key messages at a local level.

Figure 4.4 Divisions contracted by the NPS to June 2002



Locally coordinated activities through NPS contracted division

Educational visits, known to improve prescribing¹ and patient outcomes², continue to be the main method for local delivery of NPS messages. Just under 12,000 visits have been undertaken by NPS facilitators (Appendix 2, Table A2.4). Division held small group discussion of nationally developed case studies (Appendix 2, Table A2.5) and small groups discussions of clinical audit feedback (Appendix 2, Table A2.6) are also growing in popularity. Participation in nationally developed and locally run clinical audits (Appendix 2, Table A2.7) as well as locally developed and locally run clinical audits (Appendix 2, table A2.8) is relatively low; just over 400 GPs have participated in each these activities to date.

Division participation across a range of activities and topics

Decisions about which NPS therapeutic topic is covered and the type of activity offered are made at a divisional level (Figures 4.5 and 4.6). As indicated above, education visits continue to be a popular method for delivery NPS messages at a local level. Small group discussion of division run case studies are also growing in popularity.

Figure 4.5 Division participation across activity type to 31 March 2002

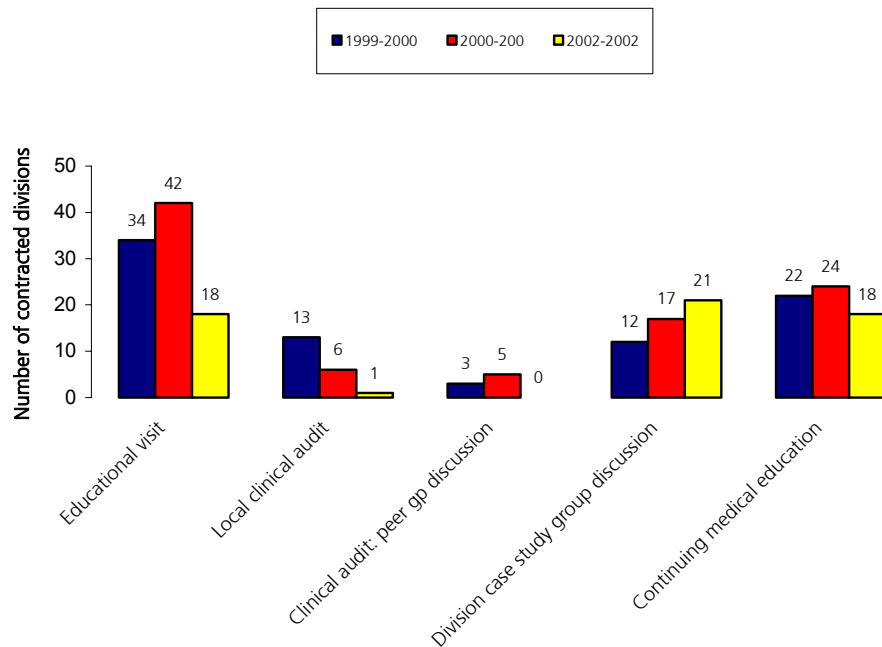
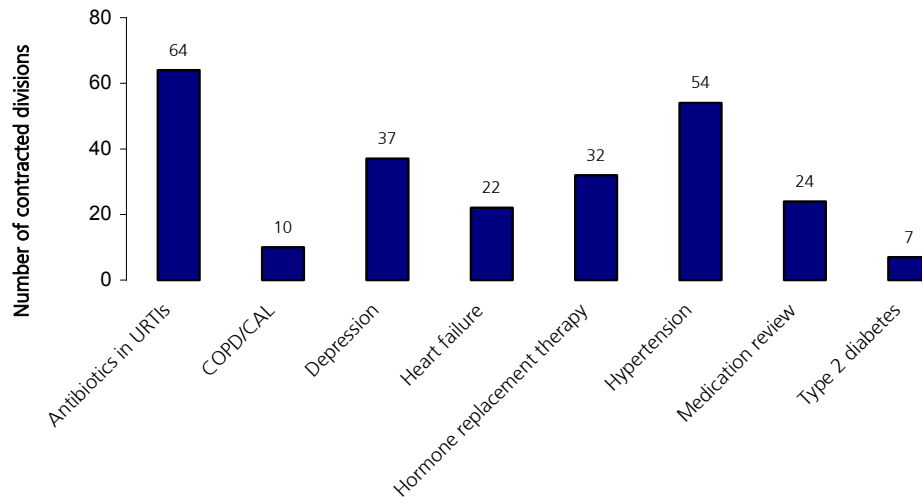


Figure 4.6 Division participation across therapeutic topic to 31 March 2002



A national picture of local NPS activities

The delivery of national QUM messages by individual divisions of general practice is a complex process. A good example of this was the national program on hypertension (Figures 4.7 and 4.8). In the 19-months November 1999 to May 2001, a total of six divisions provided a local clinical audit cycle on hypertension: four in Queensland (QLD1, QLD2, QLD3 and QLD 4); one in Western Australia (WA1); and one in Victoria (VIC1). Similarly, in the period January 1999 to December 2001, 26 divisions provided educational visiting cycles on hypertension.

The figures derived from the national program on hypertension are a first attempt to graphically represent the multifaceted and complex nature of NPS program delivery. Graphical representations such as these make it possible to identify peak times of message delivery, both at national and local levels. Continuing to refine methods for reporting this type of data will be a priority for the Evaluation Program.

Figure 4.7 Management of hypertension: local clinical audit cycles*

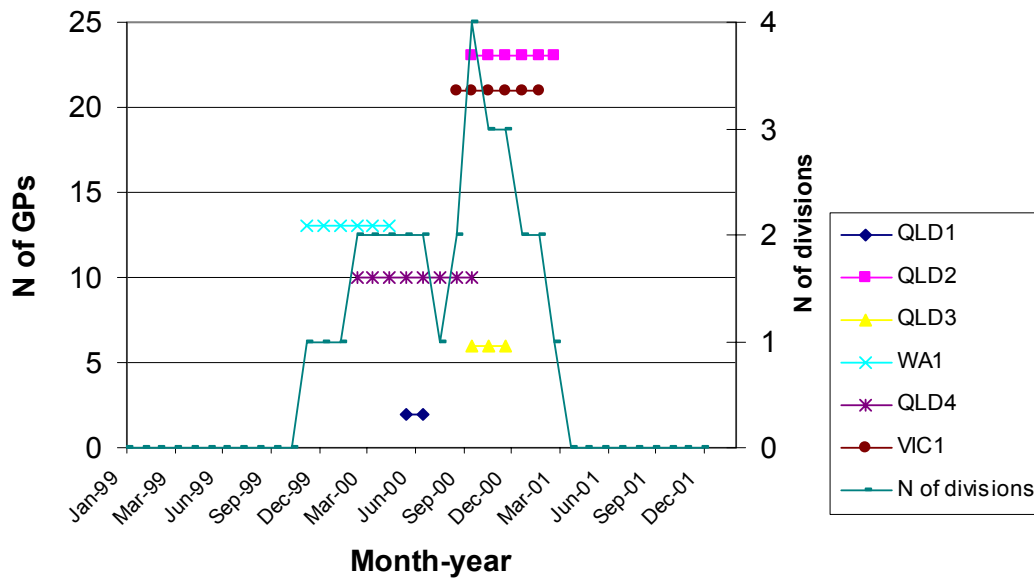
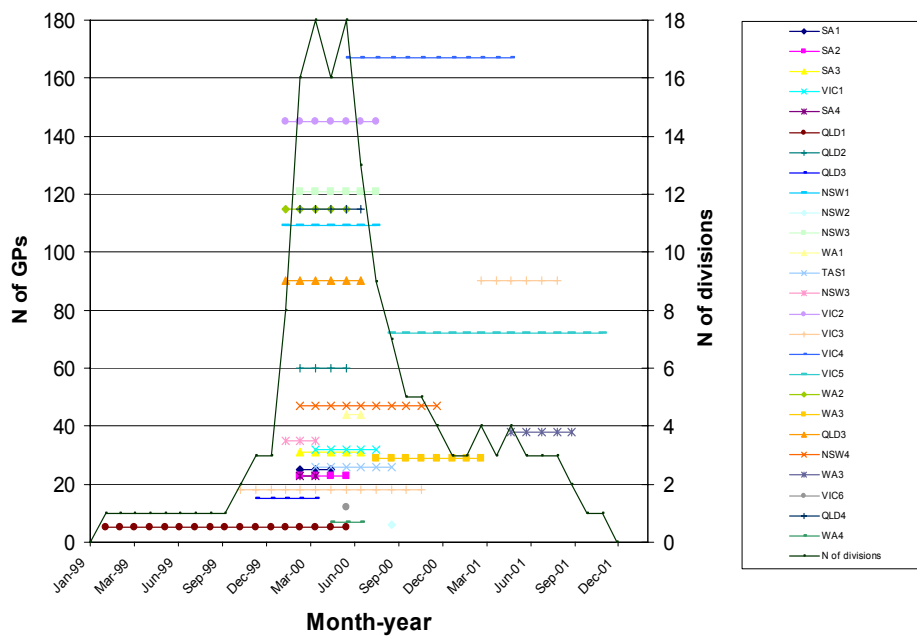


Figure 4.8 Management of hypertension: educational visiting cycles*



* The horizontal rows of symbols represent each division that implemented a local clinical audit cycle (Figure 4.7) or educational visiting cycle (Figure 4.8). The height of these rows indicates the number of GPs who participated in these activities and the width shows the time frame for implementation.

Growing pharmacist participation

The first case study specifically for pharmacists (cough and hypertension) was offered in 1999. Pharmacists also started receiving a copy of the PPRs in early 2000. The NPS Pharmacy Program was expanded in early 2001. Currently, pharmacists are offered two case studies and two self-audits of over-the-counter (OTC) prescribing per year. Up to June 2002, there have been three self-audits offered to pharmacists (participation in the common colds audit closes in August 2002). While there have been five pharmacist specific case studies, pharmacists have also been able to participate in a further four case studies (which were open to GPs as well as other health professionals).

Participation rates in these activities are low (under 500 pharmacists in total for each activity), but continue to increase (Appendix 2, Tables A2.9 and A2.10). Importantly, the relatively low participation by pharmacists at present is comparable to participation by GPs in early activities offered by the NPS.

Independent information for health professionals

TAIS is a national drug and therapeutic information service primarily targeted at community-based health professionals. A six-member consortium (the Australian Consortium of Drug Information Services) operates the service, on behalf of the NPS. The six sites are established Drug Information Centres based in Melbourne, Adelaide, Brisbane (2), Perth and Newcastle. Inquiries may be lodged via a dedicated 1300 telephone line between 9am-7pm Monday to Friday, or alternatively, via email or fax which are available 24 hours a day, 7 days a week.

TAIS began operation in June 2000. In the two-years to 28 June 2002 TAIS has received just under 10,000 calls (Table 4.3). Over 80% of the calls received by TAIS have been from GPs and pharmacists. The majority of these calls involved queries regarding drug interactions (23%), adverse drug reactions (22%) and therapeutic strategies (11%).

Table 4.3 **Number of enquiries received by TAIS (1 June 2000 to 30 June 2002)**

Period	Duration	Number of calls
June 2000 to December 2000	7 months	1855
January 2001 to June 2001	6 months	2916
July 2001 to December 2001	6 months	2403
January 2002 to June 2002	6 months	2499
Total to date	25 months	9673

NPS News is mailed every two months to approximately 18,000 GPs, 12,000 Pharmacists and 29,000 Other Medical Practitioners (OMPs) Australia wide. To date 22 issues of *NPS News* have been distributed.

Australian Prescriber is a national journal of drugs and therapeutics. It was published by the Commonwealth Department of Health from 1975 until January 2002 when the NPS assumed responsibility for the journal. *Australian Prescriber* is published every two months and is distributed to approximately 45,000 Australian health professionals. Its readers are mainly medical practitioners and pharmacists, but it is also used by dentists, other health professionals and several universities for teaching undergraduates.

Australian Prescriber was one of the first medical journals in the world to make its full text freely available on the internet. This has been a successful initiative with more than 300,000 hits on the web site each month. The website has increased the international exposure of Australian Prescriber.

Services for consumers

A detailed review of the NPS services for consumers is provided in the NPS 4th Evaluation Report (February 2002). In brief, patient information materials developed thus far include: symptomatic management of upper respiratory tract infections (URTIs); withdrawal from sedatives and sleeping tablets; patient self-management of heart failure; a tool to help GPs review patient medication; and a non prescription pad for managing dyslipidaemia through dietary and lifestyle changes.

In addition, media releases, radio and television interviews, newspaper articles and advertisements have been prepared routinely. Similarly, one off special campaigns have been held. For example, in April to June 2000 a small-scale community campaign to raise awareness that antibiotics do not hasten recovery from coughs and colds and overuse may lead to resistance was run.

A full-scale national consumer campaign 'Common Colds Need Common Sense' was implemented in the period June to August 2001, this is again being run in the 2002 winter months. As part of the 2001 campaign 73 organisations undertook over 200 community education presentations to over 2,500 consumers.

Although it is not a core activity for NPS contracted divisions, many NPS facilitators actively involve consumers when delivering QUM messages. As at March 2002, 114 activities targeting more than 3,700 consumers had been undertaken in 19 Divisions across Australia. The most popular therapeutic topics covered by these divisions include medication review and / or use of antibiotics in URTIs (78% of the consumer audience).

A national prescribing curriculum

The structure of the web-enabled, interactive curriculum is complete and available to senior medical students in all Australian medical schools. All 12 problem based web-interactive modules are available online via <http://nps.unisa.edu.au> by medical schools. Visitor access is also available. In 2002, it is envisaged that nine of the eleven universities will use the curriculum in some form.

Disseminating a QUM message to the wider audience

NPS staff, facilitators, Board, and working group members continue to actively disseminate QUM messages and principles via participation in local, state, national and international conferences. A sample of these presentations is included(Appendix 2).

5. Impact evaluation

The overarching objective of the NPS is to promote quality use of medicines, where this is considered to be judicious selection of management options, appropriate selection of medicines where a medicine is considered necessary, as well as safe and efficacious use of medicines. This can be considered in more specific and measurable terms, as aiming to achieve the following:

- To increase the extent to which prescribing reflects evidence-based 'best practice'.
- To devise and implement incentives to encourage 'best practice' prescribing.
- To improve ongoing education and maintenance of skills relating to therapeutics.
- To improve access to and use of 'point-of-use' decision support materials.
- To improve consumer use, understanding and expectations of relevant medicines.
- To improve communication and cooperation between prescribers, other health professionals (particularly pharmacists) and consumers.

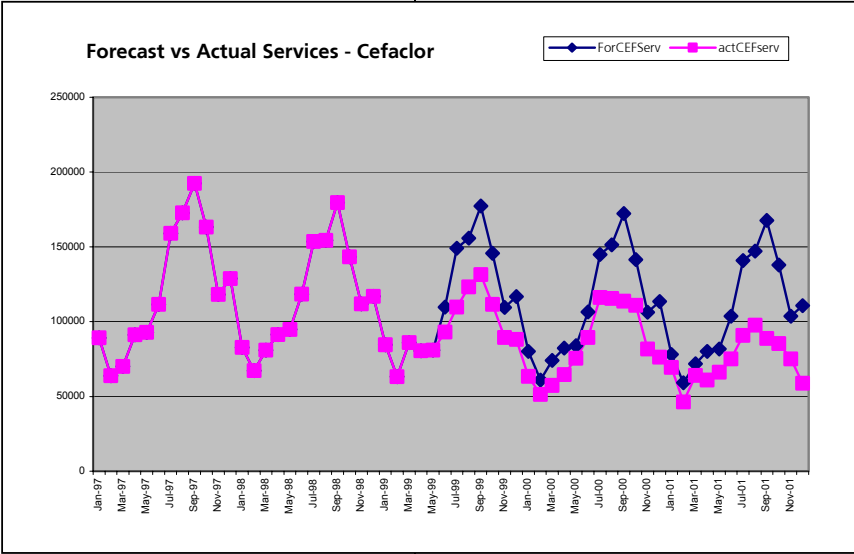
Impact evaluation involves monitoring changes in knowledge, skills and behaviours associated with medication usage. Specifically, this involves identifying suitable means of measuring change in the areas listed above. As a first step, a number of specific and 'testable' evaluation questions have been formulated within each objective and recorded in the NPS Evaluation Plan. Criteria for inclusion as an evaluation question were that there was a sufficiently clear and unambiguous NPS message which could be directly linked to an anticipated change in prescribing or other effect, and that rigorous data existed or could feasibly be collected. Such data were required to be: accurate and representative; available within reasonable parameters of cost and time; and able to be meaningfully interpreted - without undue confounding as a result of factors such as therapeutic shift in prescribing.

Comprehensive methods for monitoring impact of services

The NPS Evaluation Program is at early stages of being able to evaluate NPS programs for their impact on the objectives listed above. As such, this report focuses on detailing the methods rather than the results of the impact evaluation. To this end, detail on the data sources available and the methods in place for undertaking the impact evaluation are provided (Table 5.1). Where possible, examples of the types of questions that can be answered are also provided. Brief results of the impact evaluation thus far are presented. Future Evaluation Reports will present results in detail.

Table 5.1 Impact evaluation: data sources and methods in place

Web based data from the Health Insurance Commission		
What is it?	How can this add to the NPS evaluation?	What types of questions are we able to address?
<p>The Health Insurance Commission (HIC) is a Commonwealth statutory authority responsible for administering payments and information for programs such as the Medicare Benefits Schedule (MBS) and the Pharmaceutical Benefits Scheme (PBS). The HIC website provides free, publicly accessible aggregate statistics on these programs. The web pages are interactive and reports can be customised for individual requirements</p> <p>MBS statistics are based on the items (e.g., standard GP consultation) and groups (e.g., professional attendances, pathology services) in the Medicare Benefits Schedule. These statistics can be reported by patient gender and age group. Services and Benefits can be presented as count, percentage or per capita statistics. Individual MBS item statistics can also be displayed as charts.</p> <p>Pharmaceutical Benefits Schedule statistics include data from both the PBS and the Repatriation Pharmaceutical Benefits Scheme (RPBS). This includes all prescriptions dispensed nationally, for which the Commonwealth Government paid a subsidy. These statistics are based on the items and groups (ATC classification) in the Pharmaceutical Benefits Schedule.</p>	<p>Web based HIC data can be used to compare the actual use of drugs with the use predicted by the Department of Health and Ageing, before and after the introduction of NPS activities, at an aggregate level.</p>	<p>The effect of strategies in reducing utilisation of cefaclor, for example, during the coughs and colds season is clear from the graph – the expected winter peak is reduced.</p>



Deidentified provider data from the Health Insurance Commission

What is it?

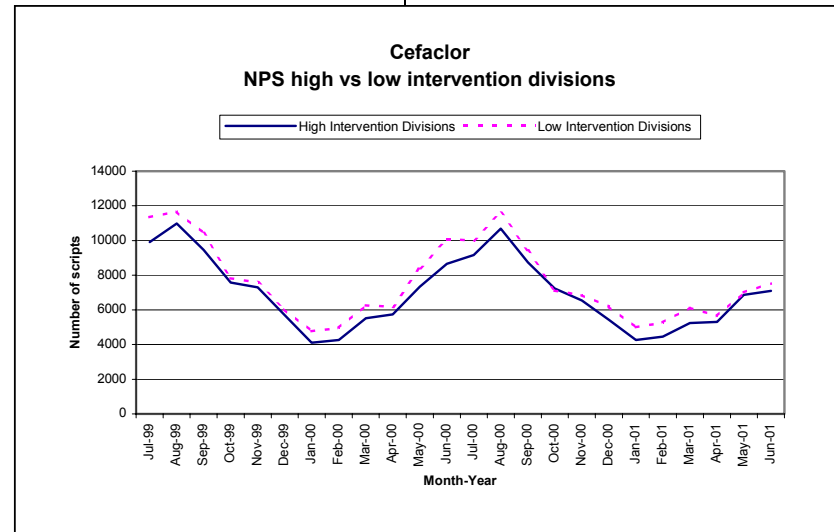
The HIC is able to provide the NPS with prescribing data by scrambled provider number. Data has been received for the period 1 July 1999 to 30 June 2001. A request has been made for data from the previous three-year period. This data has also been requested from June 2001. MBS data will provide information on the number of consultations and patients (by age, sex and month) by scrambled provider number. These MBS data will serve as the denominator for calculation of prescribing rates. PBS data will present the total number of (subsidised) scripts dispensed (both original and repeats) with a breakdown by patient entitlement levels. Gross price and net benefit of scripts by item code will be included as will the number of individuals and households with safety net cards.

How can this add to the NPS evaluation?

This data will be used to evaluate changes in prescribing and for economic modelling of NPS programs. It allows the capacity to examine differences and effects of NPS programs by geographical (including rural / urban and divisions of general practice) areas and some provider characteristics. This data does not, however, include scripts for which no government subsidy is paid and does not incorporate any information on reason for script or patient demographics.

What types of questions are we able to address?

Time series analyses will be undertaken to describe trends in prescribing (by NPS contracted divisions and non-NPS contracted divisions). This data will also be used for comparing divisions and GPs with high-level involvement in NPS activities and those with low-level participation. We have completed early attempts to compare prescribing rates of divisions with high-level GP participation with those divisions with low-level participation. The box below provides example data for cefaclor. The expected winter peak is less for divisions with high-level GP participation in NPS activities.



Drug Utilisation Sub-Committee

What is it?

To overcome the omission of 'under co-payment' data within the HIC dataset, an ongoing survey of a representative sample of community pharmacies is undertaken annually by the Pharmacy Guild for the Drug Utilisation Sub-Committee (DUSC), a sub-committee of the Pharmaceutical Benefits Advisory Committee (PBAC). The database maintained by DUSC contains data from two sources: the HIC and the annual survey of community pharmacies.

The Pharmacy Guild Survey is used to calculate the estimated Australian prescription volumes for drugs in non-subsidised categories, under co-payment and private prescriptions.

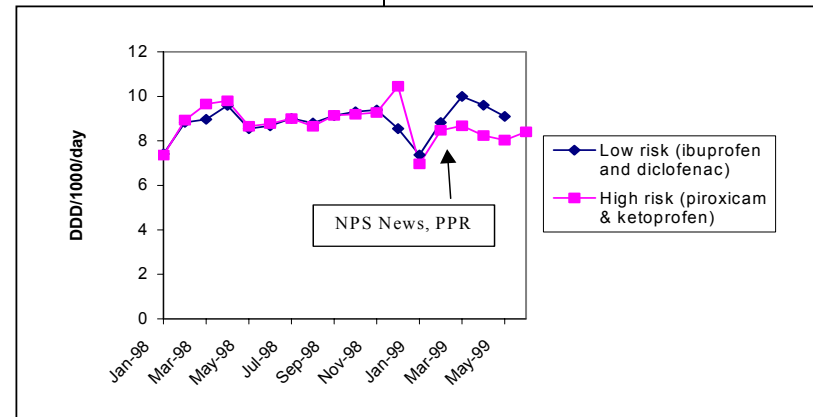
The data collected includes the drug name, form and strength, the quantity supplied and codes which identify the prescriber of the medication and the pharmacy where the medication was dispensed. The dataset provides usage statistics in two forms: by prescription number and by defined daily dose per 1000 of the population per day (DDD/1000/day).

How can this add to the NPS evaluation?

The DUSC dataset provides useful information for the NPS evaluation on overall community prescribing at a national level. It gives data on some medicines which are key targets for NPS messages, such as antibiotics commonly prescribed for URTI, but which are not captured within the HIC dataset. Data cannot, however, be considered by patient or provider variables or by reason for prescription. It is only representative at the national level, thus state and local area estimates of drug utilisation cannot be made. Generally, there is no information collected on the indication for use, dosage prescribed nor frequency of administration. The database is not patient linked and data are not available on medication use by age or gender.

What types of questions are we able to address?

DUSC data can be used by the NPS evaluation to examine prescribing trends for targeted therapeutic topics. Consistent with the intervention key messages, an increase in the use of lower risk NSAIDs following NPS intervention, and a concurrent decrease in the use of higher risk NSAIDs has been show (see below box).



National Hospital Morbidity Data Collection		
<u>What is it?</u>	<u>How can this add to the NPS evaluation?</u>	<u>What types of questions are we able to address?</u>
The National Hospital Morbidity Data Collection is a collation of state-based hospital data collections, which have been established by state health departments for hospital funding and administrative purposes. The data sets cover both public and private hospitals. Information includes reason for the admission, as well as secondary diagnoses, complications, procedures and adverse events associated with the admission.	Where a definitive and unambiguous link exists between prescribing (of NPS targeted medicines) and hospital-related health outcomes (such as hospital admission, length of stay), these data provide the potential to assess the effect of NPS-influenced changes in prescribing on hospital-related health outcomes.	To date, no data on hospital morbidity has been obtained.
Computerised GP prescribing data		
<u>What is it?</u>	<u>How can this add to the NPS evaluation?</u>	<u>What questions are we able to address?</u>
Computers are used by nearly 90% of Australian GPs for administrative and / or clinical purposes ¹⁴ . Individual GP prescribing data can be downloaded directly from these. This includes scripts for which no government subsidy is paid. Health Communication Network (HCN) has agreed to provide NPS with data from Medical Director prescribing software. A second possible source of GP prescribing data, 'Medic GP', may also be available from the Department of General Practice at the University of Adelaide.	Computerised GP prescribing data will be a useful addition to the NPS evaluation where knowledge and consideration of the relevant diagnoses and / or some other aspects regarding the patient or their history is required to enable sensible interpretation of prescribing data.	Data collected longitudinally for a national sample of patients, allows measurement of medium- and long-term outcomes of care.
BEACH data		
<u>What is it?</u>	<u>How can this add to the NPS evaluation?</u>	<u>What questions are we able to address?</u>
<p>Bettering the Evaluation and Care of Health (BEACH) program is a reliable and valid, continuous and long-term data collection program, which is able to provide a continuing measure of general practice activity in Australia. The data includes all prescriptions and repeats ordered by GPs, many of which involve drugs that fall under the PBS subsidy threshold and are therefore not recorded by the HIC.</p> <p>This dataset is derived from having a random sample of GPs nationwide (approximately 1000 per annum) complete standard information forms describing 100 consecutive patient encounters. The information routinely recorded about encounters includes the patient's stated reason for attending, the diagnoses and problems reported as managed by the practitioner, as well as medicines prescribed.</p>	This data will be useful for NPS evaluation where knowledge and consideration of patients' diagnoses and / or presentation are required to enable interpretation of prescribing data.	BEACH is a continuous, cross-sectional, encounter-based study, but its size allows results to be viewed in time series of younger through older patient populations with new or ongoing disease managed in general practice.

GP national surveys		
<u>What is it?</u>	<u>How can this add to the NPS evaluation?</u>	<u>What types of questions are we able to address?</u>
<p>Conducted in collaboration with the Department of General Practice, University of Adelaide, the NPS has undertaken three paper-based surveys by mail of Australian GPs (November 1999, October 2000 and April 2002). Both quantitative and qualitative data are collected.</p>	<p>These surveys provide information regarding: GP knowledge of and behaviour around NPS activities; GP knowledge of evidence-based prescribing; GP prescribing practices; GP contact with pharmacists and other health professionals; options for keeping up to date with changes in medical practice; and attitudes / barriers towards the clinical use of computers.</p>	<p>Do NPS programs result in a higher proportion of GPs prioritising therapeutics education highly?</p> <div style="border: 1px solid black; padding: 5px; margin: 10px 0;"> <p>In the 1999 survey, 61% of GPs considered it 'extremely important' to be kept updated about change in medical practice, including therapeutic management and prescribing.</p> </div> <p>Do NPS programs result in a higher proportion of GPs using relevant 'decision support' publications?</p> <div style="border: 1px solid black; padding: 5px; margin: 10px 0;"> <p>In the 1999 survey, 87% of GPs had used MIMS Annual in the last 4 weeks; 85% the PBS Book; 60% Therapeutic Guidelines (Antibiotics); and, 14% AMH.</p> </div>
Consumer national surveys		
<u>What is it?</u>	<u>How can this add to the NPS evaluation?</u>	<u>What types of questions are we able to address?</u>
<p>As part of the quarterly Campbell National Health Monitor™, three nation-wide surveys of consumers have been completed (August 1999, August 2000 and August 2001). In 2002, we have also included questions in the NewsPoll Omnibus both before and after the 'Common Colds' campaign.</p>	<p>These have assessed key areas including: visits to health practitioners; information about prescription medicine; treatment behaviour for flu-like symptoms; perceived effectiveness of antibiotics in the treatment of flu-like symptoms; and consumer awareness of the NPS and its functions.</p>	<p>Does an NPS program promoting appropriate use of antibiotics for URTIs result in improved community understanding that antibiotics do not hasten recovery from URTIs?</p> <div style="border: 1px solid black; padding: 5px; margin: 10px 0;"> <p>Before the 2002 Common Colds Campaign, 28.7% of consumers believe taking antibiotics to be a 'nearly always' or 'usually' appropriate action if suffering from the cold or flu.</p> </div>

Pharmacist national survey		
<u>What is it?</u>	<u>How can this add to the NPS evaluation?</u>	<u>What types of questions are we able to address?</u>
In August 2002, a paper-based survey was mailed to a random national sample of 1430 pharmacists.	<p>The aim of this survey was to measure and evaluate how useful our services and activities have been to pharmacists. Information gathered, related to current issues in therapeutics, options for keeping up to date with changes in pharmaceutical practice and views on NPS initiatives.</p> <p>The results of the survey will assist the further development of QUM programs that support pharmacy practice.</p>	<p>Have you heard, seen or read anything about medicines or prescribing medicines that came from the NPS?</p> <p>Have you taken part in any of these activities?</p> <p>Do you recall hearing, seeing or reading anything about the NPS campaign 'Common colds need common sense'?</p> <p>Of how much value is the NPS to you as a pharmacist?</p>
Readership surveys		
<u>What is it?</u>	<u>How can this add to the NPS evaluation?</u>	<u>What types of questions are we able to address?</u>
In an attempt to explore the role of <i>Australian Prescriber</i> and <i>NPS News</i> in communicating independent and expert information about the quality use of medicines, a readership survey will be undertaken in August / September 2002. This will use both qualitative and quantitative techniques. A series of focus groups will be held in metropolitan and regional / rural areas with groups of pharmacists, GPs and other medical specialists, to examine attitudes to the above-mentioned publications. The outcomes of these focus groups will form the basis for the development of a postal questionnaire, which will further investigate issues such as the layout, presentation and content of <i>Australian Prescriber</i> and <i>NPS News</i> . This questionnaire will be mailed to a random national sample of 2000 health professionals.	This survey will provide a valuable insight into the usefulness of <i>Australian Prescriber</i> / <i>NPS News</i> as sources of information when health professionals provide advice about medicines or make recommendations about the management of illness.	<p>What sources of written information do you usually use when looking up / keeping up to date on information relating to a therapy or a specific medicine?</p> <p>What do you like / dislike about <i>Australian Prescriber</i>, / <i>NPS News</i> both from the point of view of their content or topics, and their readability and style of presentation?</p>

Division operations analysis		
What is it?	How can this add to the NPS evaluation?	What types of questions are we able to address?
<p>In order to explore how the NPS works 'on the ground' at the divisional-level, site visits have been undertaken to selected divisions where interviews with facilitators, and other key staff members (e.g., CEOs) or affiliates have been completed.</p>	<p>This methodology provides a tool for defining the different models being used to deliver the 'NPS program' at a local divisional level, recognise their strengths and weaknesses, and identify factors which facilitate or act as barriers to implementation.</p>	<p>What factors facilitate local program delivery?</p> <ul style="list-style-type: none"> ▪ facilitator characteristics (eg previous experience in working with GPs; confident, positive interactional style; resilient personality; pharmacy qualifications) ▪ reference group and / or program manager support and involvement ▪ a greater no. of days worked by the facilitator within a week (in NPS program and/or generally within the Division) ▪ peer support from other facilitators <p>What factors impede local program delivery?</p> <ul style="list-style-type: none"> ▪ 'engaging' with GPs ▪ competition with pharmaceutical company events (and other initiatives generally) ▪ funding enabling employment of a facilitator for only 1 or 2 days / week ▪ facilitators being unfamiliar with Division environments / working with GPs ▪ GP perceptions of NPS as 'big brother' (HIC image) ▪ general managerial problems within Divisions

Some brief results of the impact evaluation

Incentives for quality care

The NPS continues to manage payments made under the Quality Prescribing Initiative (QPI) of the Commonwealth Government's Practice Incentive Program (PIP). QPI payments are paid to general practices in which the GPs participate in activities that are designed to foster QUM. In the 2001 PIP year (1 May to 30 April) 1,125 practices received QPI payments. In the 2002 PIP year this figure increased to 1,211 practices.

Inappropriate use of antibiotics

Preliminary analysis of antibiotic prescribing rates using aggregate data from the HIC website (Appendix 3), shows a reduction in the expected winter peak for cefaclor, amoxicillin + clavulanic acid, and roxithromycin following NPS interventions to reduce inappropriate prescribing of antibiotics for uncomplicated URTIs.

6. Outcome evaluation

The goals of the NPS involve optimising:

- health outcomes for the community
- the level of coordination of QUM activities and messages
- the cost of prescribed medicines to the PBS.

Evaluating the outcome of NPS services involves identifying suitable means of measuring change in the above variables.

Health outcomes for the community

No data is yet available to evaluate changes in health outcomes as a result of NPS programs. The issue of linking prescribing changes to changes in health outcomes will continue to be a priority both for the NPS Evaluation Working Group and the group's key collaborators including other working group members, NPS staff, divisions of general practice and facilitators. Health outcomes evaluation will address issues including:

- the number of hospital admissions per annum as a consequence of indicator diseases that are sensitive to QUM, e.g., acute exacerbation of asthma, peptic ulcer disease, congestive cardiac failure, schizophrenia;
- the percent of persons with inadequately treated indicator conditions;
- the mortality rate due to index diseases that are sensitive to QUM, e.g., asthma, peptic ulcer disease.

National coordination of QUM activities

Methods for examining whether QUM programs operating across and within healthcare sectors promote consistent messages continue to be refined. A pilot project has been completed that monitored the feasibility of GPs collecting and reporting on drug promotion material disseminated by the pharmaceutical industry. Exploring similar methods will remain a priority for the Evaluation Program.

Savings to the PBS

Initial contractual agreement

The initial funding agreement with the Commonwealth required NPS activities to achieve savings to the Pharmaceutical Benefits Scheme (PBS) of \$45.616 million over 4 years: \$2.851 million in the first year and \$14.255 million in each of the three subsequent years. Three-quarters of the way through the initial funding period the NPS achieved savings of just under \$49 million, clearly satisfying the Commonwealth's requirements (Table 6.1).

Table 6.1 Summary of PBS savings to July 2000

	Contracted savings	Actual savings
1997 - 98	2,851,000	3,780,000
1998 – 99	14,255,000	19,151,966
1999 – 00	14,255,000	25,929,477
2000 – 01	14,255,000	unavailable
Total	45,616,000	48,861,443*

* In October 1999 the control group ceased to exist. As this calculation has made no allowance for the control group receiving NPS program material from this date, the calculated saving would be a conservative estimate, potentially underestimating savings by up to 50%.

The savings were calculated as the difference in the rate of growth of PBS prescription costs between an intervention group and a control group. The intervention group had access to *NPS News*, prescriber feedback (*PPRs*), clinical audits, case studies and in some cases also practice visits via an NPS facilitator employed by a local division of general practice. The control group of 1068 GPs from five divisions of general practice received *NPS News* but no other interventions or NPS programs.

External review of the NPS savings methodology was undertaken. The Australian Institute for Primary Care, La Trobe University concluded: 'the NPS savings estimates are plausible', 'it is likely that NPS estimates are at the low end of the range of actual savings', 'given the inclusion of intervention group data from the outset of the program as if they had received the intervention on Day 1, when in fact the roll out was much slower than that, is likely to underestimate program effects', 'we endorse the savings estimates provided by the NPS as conservative of the actual savings generated'. Similar review by Access Economics concluded: 'the NPS estimates are appropriate'.

While endorsing the approach taken by NPS in calculating savings achieved in the initial funding period, both reviews suggested improvements that would result in more rigorous methodology. The major recommendations were:

Discontinue the control group

'Any future methodology for assessing savings made to the PBS should assume that it is not feasible to have a control group with which changes can be compared.'

'The NPS should migrate their evaluation focus from their initial intervention control group comparison, with its inherent shortcomings, to a multiple baseline approach. We consider this approach is technically better suited to the program design and specifications.'

'We consider that the use of RCT (randomised controlled trial) terminology and concepts in the presentation of the evaluation data be discontinued.'

Broader evaluation

'Budget savings are only one aspect of the NPS economic and social contribution. It would be possible to extend the analysis to include: the impact on health outcomes; impacts that occur via target groups other than GPs; and budgetary impacts that occur via other routes than the PBS. Hospital cost savings are an example of a different sort of budgetary impact.'

Examine predictors of prescribing

'We strongly endorse the plans of the NPS to track individual GPs and Divisions so that the real impacts of the program can be tracked at the level of detail required to inform subsequent program design.'

'There may be opportunities for a broader evaluation of NPS impacts relative to those of other influences on GP behaviour. One possible approach would be to take two samples of GPs that have 'good' and 'poorer' prescribing behaviour. A study of the two samples, using survey and interview techniques, might establish the sources of their prescribing behaviour, and the role of information channels, including the NPS, in influencing the behaviour.'

'We also advocate the modelling of savings and usage data using GP and practice characteristics. There is utility in modelling the impact of practice characteristics upon prescribing behaviour and susceptibility to changes in prescribing behaviour in order to enable better prediction of differences. This would facilitate better targeting of practices and practitioners for interventions and would inform intervention design and delivery.'

Current savings agreement

The current agreement with the Commonwealth requires that with a four-year funding of \$45.76million, the NPS must deliver savings of \$111million to the PBS: \$28.5 million in the first year and \$27.5 million in each subsequent year.

As detailed, external review of the initial savings estimates suggested the need to develop and refine more rigorous methods for estimating financial savings to the PBS arising from NPS activities. To this end, the NPS has contracted the Department of General Practice, Adelaide University for expert advice and analysis. A methodology paper has been submitted to the Department of Health and Ageing (DHA) for comment. This methodology paper has also been reviewed externally by econometricians at the Health Economics Unit, Monash University. This review found the methodology paper to be 'a very impressive outline of a piece of innovative and ambitious work that should provide the NPS with the best available evidence on the impact of its work on financial savings to the PBS ... the methodology proposed appears on the whole to be reasonable and feasible'.

In brief, the proposed methodology for assessing the financial impact of the NPS comprises the following principles and methods:

1. A map of NPS interventions. This map will be based on the NPS activity and GP participation profiles recorded by NPS. A set of indicators of density of NPS intervention (both activities and participation) will be developed. New and developing NPS activities will be described in a method consistent with these mapping techniques.
2. A map of PBS policy changes. This map will include changes to the price of drugs, indications for drugs and changes in co-payments.
3. A set of tools and methods of analyses. It is expected that this set of tools and methods will develop over time. The tools currently comprise:
 - Time series analysis
 - Cross sectional analysis
 - Regression analysis
 - Forecasting techniques
 - Analysis of indicators of prescribing

4. A set of databases. These databases are expected to evolve over time. These data sources include:
 - HIC web site data on prescribing
 - The NPS/HIC data set – data on prescribing, by drug, by prescriber, and consultations, by provider. The NPS currently has two years of HIC data (1 July 1999 to 30 June 2001) and has requested data from the previous three years.
 - GP desktop databases
 - The Medical Director® General Practice Research Network database (GPRN)
 - BEACH data
 - Other data collected by the Drug Utilisation Subcommittee (DUSC)
 - NPS activity database – a database of the activities implemented by NPS divisional facilitators
 - NPS participation database – a database of participation rates by GPs by postcode by NPS activity type
 - PBS forecasting model
 - The log of NPS activities and associated drugs

5. Matching technologies: For each specific strategy, for example heart failure, the analytical techniques will be matched to the appropriate database and a rigorous estimate of the financial impact on savings will be developed. This estimate will be supported by evidence from alternative combinations of techniques and databases. In this way a case for savings of at least the amount identified through the contractual requirements will be developed.

It is important to emphasise that no single technique and database combination can be used to assess the financial impact of the NPS and that analytical techniques will need to be matched to the appropriate database to derive the most rigorous estimate of financial impact for each specific NPS strategy. These techniques of analysis will evolve over time and in part be dictated by the data.

It is also important to note that changes in drug utilisation resulting from NPS activities are required to be in accordance with QUM. As such, reducing financial expenditure is only of value if it is consistent with concordance with QUM. This supports the notion that savings in PBS expenditure will only be appropriate for certain drugs where reduced prescribing is desirable. Reduced utilisation of other drugs (e.g., antidepressants) may not be appropriate.

It is anticipated that the outcomes of the economic evaluation for July 2000 to June 2001 will be finalised by the end of the current calendar year and be available for the next Evaluation Report.

7. Questions that still need to be answered

The current evaluation report provides a brief update on the progress of the NPS. The data and evaluation methods available at the current time provide encouraging insights. There has been:

- high level of activity among GPs (approximately 60% of GPs in Australia have participated in at least one NPS activity);
- growing involvement of pharmacists and consumers;
- widespread uptake across the nation in all geographic areas;
- repeat participation in activities; and
- changes in antibiotic prescribing consistent with 'best evidence'.

However, there still remains a great deal to be done. The priorities for future evaluation are discussed below.

Informing decisions regarding future program implementation

So far, the focus for NPS evaluation has been on reporting processes, for example, reach of activities. There are now enough data to begin to develop hypotheses about different uptake rates of NPS activities per topic, across activities and by differing regions (e.g., rural versus metropolitan, state versus state etc). To assist NPS in decisions regarding future therapeutic topics and activities, the evaluation will need to undertake more complex interpretative work that examines these differing uptake rates, both for nationally implemented activities and those implemented locally through divisions of general practice.

Impacts on medication use

Data from the HIC on MBS services and PBS prescribing for the two years 1 July 1999 to 30 June 2001 was recently received. MBS data provides information on the number of consultations and patients (by age, sex and month) by de-identified provider. PBS data presents the total number of (subsidised) scripts prescribed (both original and repeats) with a breakdown by general beneficiary (no safety net, safety net) and concessional beneficiary (no safety net, safety net) entitlement levels. Gross price and net benefit of scripts by item code will be included as will the number of individuals and households with safety net cards.

Economic consequences of NPS initiatives

The Evaluation Program will continue intensive work on developing methods for estimating the financial impact of NPS initiatives on the PBS. This methodology will involve a set of analyses in which time series analysis will be used to identify the 'best fit model'. Estimates of the effect of NPS for the period 1 July 1999 to 30 June 2001 are currently being determined.

Potential of computerised prescribing datasets

In conjunction with the Department of General Practice, University of Adelaide, the potential of computerised prescribing datasets as a source of information for NPS evaluation will be explored. This will involve the preparation of a reference 'manual' of sorts which will detail the process and context of examining locally relevant prescribing data as well as how utilising these data add to the information that can currently be derived from HIC/DUSC data sources.

Capacity needed to implement NPS initiatives

The Evaluation Program will be developing methods for measuring the capacity needed to implement NPS initiatives within divisions throughout Australia. The intensity of NPS program implementation and the differing implementation methods within divisions will be compared to drug utilisation data. This information will be essential for informing program development.

Local drug utilisation data

The Evaluation program will attempt to examine the intensity and methods of divisional implementation of NPS programs in relation to local drug utilisation data. That is, data collected directly from a GPs personal computer. This will provide information on the 'outputs' that are obtained from particular 'inputs' at the local level.

NPS prescribing curriculum

Together with the Curriculum Development and Implementation Program team, the Evaluation Program will develop methods for appraising the NPS prescribing curriculum for medical students. The focus will be on measuring the uptake of the curriculum by Australian universities, identifying the methods of implementation, examining the barriers to implementation, and assessing the sustainability of the program. In addition, the outcomes of the curriculum will be measured in terms of whether the curriculum: has changed the way students make decisions about prescribing; and, has changed the capacity for students to work logically, using evidence, to transfer knowledge and apply this knowledge in the real world.

Advocate for drug utilisation data needs

The Evaluation Program will continue to identify pharmaceutical utilisation data needs both for NPS and other national projects and / or policies. These needs include: access to under co-payment data; linking drug utilisation to indication; and measures of health outcomes related to drug utilisation. This is a key advocacy area for NPS and it should be informed by expert advice through the Evaluation Program. Strategic alliances with the DUSC and the HIC will be needed to this end.

8. References

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9. Appendices

Appendix 1

Reach of services

Table A2.1 NPS prescribing practice reviews and their distribution (December 1998 to June 2002)

	Date mailed	GPs	OMS *	OMPs **	Total	
1.	H. pylori / peptic ulcer management	December 1998	15636	327	15963	
2.	NSAIDs	March 1999	15633	679	16312	
3.	Antibiotics 1999	April 1999	14564		14564	
4.	Benzodiazepines	July 1999				
5.	COPD	October 1999	14567	224	14791	
6.	Managing hypertension	November 1999	15814	1391	17205	
7.	Medication review	February 2000				
8.	Management of heart failure	May 2000				
9.	Antibiotics 2000	August 2000	15791	2011	17802	
10.	Managing depression	October 2000	15862	1482	19352	
11.	Management of dyspepsia	May 2001	15873	1039	18821	
12.	Antibiotics 2001	July 2001	15920	1906	17826	
13.	Management of hypertension (an update)	October 2001	15942	5529	2054	23525
14.	Hormone replacement therapy	October 2001	15942	5529	2054	23525
15.	Management of type 2 diabetes	November 2001	15942	5529	2056	23527
16.	Cox-2 selective NSAIDs	December 2001	16150	7177	1912	25239
17.	Managing dyslipidaemia	February 2002	16145	5569	1909	23623
18.	Antibiotics 2002	May 2002	16122	109	1904	18135
Total to date		235903	34584	19723	290210	

* OMS refers to other medical specialists

** OMPs refers to other medical practitioners (medical practitioners other than a recognised general practitioner)

Table A2.2 Participation in GP case studies (to 30 June 2002)

1 July 1998 to 30 June 2002									
	GPs	Non-PIP GP	OMS	Other	PH	Nurse	Registrar	Student	Totals
CS1H. pylori eradication therapy	10	0	0	0	0	0	0	0	10
CS2Otitis media	382	2	0	3	0	0	0	0	387
CS3Benzodiazepines	314	1	4	5	3	0	0	1	328
CS4COPD	685	1	2	3	3	0	0	0	694
CS5New drugs	1363	1	5	2	4	0	0	1	1376
CS6Managing hypertension	275	0	0	0	0	0	0	0	275
CS7Medication review	1410	1	1	4	7	0	0	1	1424
CS8Management of heart failure	1658	0	4	5	11	0	1	2	1681
CS9Cox-2 selective NSAIDs	60	1	3	0	4	0	0	0	68
CS10Depression	1714	1	1	2	6	0	0	0	1724
CS11Hormone replacement therapy	1872	1	0	0	5	0	0	1	1879
CS12Polypharmacy	1246	0	2	1	24	0	0	0	1273
CS13Management of dyspepsia	1251	2	0	0	1	0	0	0	1254
CS14Management of sinusitis	1155	0	2	0	1	0	0	1	1159
CS15Focus on psychogeriatrics	1220	2	2	1	4	0	0	1	1230
CS16Management of type 2 diabetes	1628	4	1	0	3	0	0	1	1637
CS17Cox-2 selective NSAIDs	1452	1	7	1	3	0	2	1	1467
CS18New drugs	1013	2	7	6	16	0	0	0	1044
CS19Dyslipidaemia and CHD risk	1415	0	1	4	0	0	1	3	1424
CS20Managing bronchitis	1330	4	10	9	8	0	1	5	1367
CS21Managing problem drinking *	0	0	0	0	0	0	0	0	0
Total to date	21453	24	52	46	103	0	5	18	21701

* Data not available at time of report.

Table A2.3 Participation in nationally developed and nationally run clinical audits (to 30 June 2002)

1 July 1998 to 30 June 2002						
		GP	Non-PIP GP	Other	PH	Total
Antibiotics 1999	402154	582	17	6	1	606
Managing hypertension	404656	1833	0	3	0	1836
Antibiotics 2000	407836	1525	3	0	0	1528
Managing depression	409322	1284	0	0	0	1284
Antibiotics 2001	411130	2181	1	1	0	2183
Managing type 2 diabetes	414596	1603	0	0	0	1603
Management of hypertension	411747	1137	0	0	0	1137
Managing dyslipidaemia	414595	1967	0	0	0	1967
Antibiotics 2002	415449	656	0	0		656
Antibiotics Medical Director	408249	83	0	0	0	83
Total to date		12851	21	10	1	12883

* Data not available at time of report.

Table A2.4 Participation in educational visits to 30 June 2002

1 July 1998 to 30 June 2002									
	GPs	Non-PIP GP	OMS	Other	PH	Nurse	Registrar	Student	Totals
1 Antibiotics	2479	182	33	1	17	0	0	1	2713
2 COPD	342	4	0	0	0	0	0	0	346
3 Hypertension	2329	186	36	4	0	8	1	0	2564
4 Heart failure	965	15	0	0	0	0	0	0	980
5 Depression	2680	173	43	0	9	0	0	0	2905
6 Hormone replacement therapy	1807	27	0	0	17	1	1	1	1854
7 Type 2 diabetes	2225	156	6	0	21	1	1	1	2411
8 Lipid modifying drugs	6	3	0	0	0	0	0	0	9
Total to date	12833	746	118	5	64	10	3	3	13782

Table A2.5 Participation in small group discussions of nationally developed case studies to 30 June 2002

1 July 2000 to 30 June 2002									
	GPs	Non-PIP GP	OMS	Other	PH	Nurse	Registrar	Student	Totals
Heart failure	78	2	0	0	1	0	1	0	82
Depression	143	0	1	0	3	0	0	0	147
Hormone replacement therapy	611	28	0	0	0	0	0	0	639
Antibiotics	191	0	0	0	5	0	0	0	196
Hypertension	116	9	0	0	4	5	0	0	134
Type 2 diabetes	700	30	2	0	18	1	1	0	752
COPD	7	0	0	0	0	0	0	0	7
NSAIDs	18	4	0	0	0	0	0	0	22
Dyslipidaemia	11	1	0	1	7	2	0	0	22
New drugs	2	0	0	0	0	0	0	0	2
Total to date	1877	74	3	1	38	8	2	0	2003

Table A2.6 Participation in small group discussions of clinical audit feedback to 30 June 2002

	GP	Other	PH	Total
Antibiotics	60	2	1	63
Medication review	46		42	88
Hypertension	7			7
Depression	6		5	11
Total to date	119	2	48	169

Table A2.7 Participation in nationally developed and locally run clinical audits to 30 June 2002

1 July 1998 to 30 June 2002					
		GP	Non-PIP GP	Other PH	Total
Antibiotics	401851 Inner SE Melbourne DGP	19			19
	404252 Inner SE Melbourne DGP	16			16
	404627 NW Melbourne DGP	45			45
	404913 Brisbane North DGP	23			23
	405673 Toowoomba DGP	26			26
	405861 Swan Hills DGP	17			17
	406137 Illawarra DGP	67			67
	406803 Monash DGP	43			43
	406896 Perth DGP	10			10
	444499 Dandenong DGP	62			62
Hypertension	405206 Canning DGP	12			12
	407748 Brisbane Inner South and Bayside	2			2
	408547 Southcity GP Services	21			21
	408601 Brisbane North DGP	23			23
Depression	411552 Toowoomba DGP	13			13
	411886 Illawarra DGP	17			17
Total to date		416	0	0	416

Table A2.8 Participation in locally developed and locally run clinical audits to 30 June 2002

1 July 1998 to 30 June 2002						
		GP	Non-PIP GP	Other PH	Total	
Polypharmacy	400871 Central Coast DGP	2			2	
Medication review	401136 Inner SE Melbourne DGP	43			43	
	402576 Brisbane North DGP	73	1		74	
	403851 St George DGP	36			36	
	405048 Riverina DGP	14			14	
	404511 DiNCQUMGP / Fremantle DGP	7			7	
	406961 DiNCQUMGP / Osborne DGP	20			20	
	407534 DiNCQUMGP / Central Coast DGP	9			9	
	407630 DiNCQUMGP / Central Sydney DGP	7			7	
Hypertension	406657 QRMSA	9			9	
Heart failure	407963 QRMSA	14			14	
	410131 South City GP Services	55			55	
Benzodiazepines	408731 Southern DGP	17			17	
NSAIDs	409253 QRMSA	106			106	
HRT	411718 Brisbane North DGP	13			13	
Quality indicators	412046 Mackay DGP	23			23	
Total to date		448	1	0	0	449

Table A2.9 Participation in pharmacist case studies

1 July 1998 to 30 June 2002									
	GPs	Non-PIP GP	OMS	Other	PH	Nurse	Registrar	Student	Totals
1 Cough and hypertension	15	0	0	0	0	0	0	0	15
2 Symptomatic management of URTIs	88	0	0	0	60	0	0	0	148
3 Management of dyspepsia	4	0	1	0	62	0	0	1	68
4 Cox-2 selective NSAIDs	6	0	0	0	173	0	0	2	181
5 Dyslipidaemia and CHD	3	0	0	0	101	0	0	0	104
Total to date	116	0	1	0	396	0	0	3	516

Table A2.10 Participation in pharmacist self audits

1 July 2000 to 30 June 2002									
	GPs	Non-PIP GP	OMS	Other	PH	Nurse	Registrar	Student	Totals
1 OTC supply of NSAIDs	0	0	0	0	144	0	0	0	144
2 OTC management of allergic rhinitis	0	0	0	0	265	0	0	0	265
Total to date	0	0	0	0	409	0	0	0	409

Appendix 2

Published abstracts by NPS staff, facilitators, Board and working group members to end June 2002

National Prescribing Service –Curriculum for Prescribers

Tina Tasioulas¹, Anthony Smith²

¹Education Project Officer, ²Director, National Prescribing Service Ltd

Presented at: Prevocational Medical Education Conference, 2000.

Type: Poster presentation.

Rural Relationships – Opportunities for Clinical Pharmacists

Christopher Cutts C^{1,2,3}, Susan Tett¹ & Sheedy V²

¹School of Pharmacy, University of Queensland, ²Queensland Rural Medical Support Agency, ³National Prescribing Service

Presented at: SHPA Clinical Conference, 2000, Queensland.

Type: Oral presentation.

Conjoint Appointments – Is More Than Just Hospital or Community Pharmacy?

Christopher Cutts^{1,2,3}, Susan Tett¹ & Sheedy V²

¹School of Pharmacy, University of Queensland, ²Queensland Rural Medical Support Agency, ³National Prescribing Service

Presented at: APSA Conference, 2000, Newcastle.

Type: Oral presentation.

The National Prescribing Service and the hospital pharmacist

Judith Mackson

National Prescribing Service Ltd

Presented at: SHPA (WA) State Branch Conference, 19 August 2000, Perth.

Type: Oral presentation. Invited.

Introducing National Prescribing Service Practice Visits Programs To Two Divisions of General Practice In Melbourne

Mary Levidiotis^{1,2}

¹North East Valley Division of General Practice, ²Northern Melbourne Division of General Practice, Melbourne, Victoria

Presented at: NPS National Medicines Symposium, August 2000, Melbourne.

Type: Poster presentation.

NPS Story: Quality Prescribing Through Clinical Audit

Judith Mackson, Margaret Fitzgerald, Lynn Weekes

National Prescribing Service Ltd

Presented at: NPS National Medicines Symposium, August 2000, Melbourne.

Type: Poster presentation.

A Quality Use of Medicines Program for Pharmacists

Judith Mackson, Deborah Sobel

National Prescribing Service Ltd

Presented at: NPS National Medicines Symposium, August 2000, Melbourne.

Type: Poster presentation.

National Prescribing Service educational visiting program: Models of practice developed by the Barossa Division of General Practice, Yorke Peninsula Division of General Practice and Southern Division of General Practice in collaboration with the Drug and Therapeutics Information Service (DATIS)

Louise Quinn, Debra Rowett, Tricia Warrick, Tania Colarco, Jody Braddon, Frank May, Joy Gailer, Ruth Wilton, Susan Edwards

Barossa Division of General Practice, Yorke Peninsula Division of General Practice, Southern Division of General Practice

Presented at: NPS National Medicines Symposium, August 2000, Melbourne.

Type: Poster presentation.

National Prescribing Service Educational Visiting Programs delivered by the Drug and Therapeutics Information Service

Debra Rowett, Frank May, Jody Braddon, Tania Colarco, Louise Quinn, Tricia Warrick, Joy Gailer, Ruth Wilton, Susan Edwards.

Drug and Therapeutics Information Service (DATIS)

Presented at: NPS National Medicines Symposium, August 2000, Melbourne.

Type: Poster presentation.

The Drug and Therapeutics Information Service (DATIS): Audit of the Therapeutic Decision Support Service for General Practitioners

Tricia Warrick, Tania Colarco, Debra Rowett, Jody Braddon, Louise Quinn, Frank May, Susan Edwards, Joy Gailer, Ruth Wilton

Drug and Therapeutics Information Service (DATIS)

Presented at: NPS National Medicines Symposium, August 2000, Melbourne.

Type: Poster presentation.

National Prescribing Service Limited & North West Melbourne Division's Approach to Quality Use of Medicine

Ralph Audehm, Debra Houghton, Alice Glover, Khin Zaw Aung

North West Melbourne Division of General Practice Ltd

Presented at: NPS National Medicines Symposium, August 2000, Melbourne.

Type: Poster presentation.

Clinical audit as a measure of prescribing rates and antibiotic selection

Judith Mackson, Lynn Weekes, Tai Rotem

National Prescribing Service Ltd

Presented at: ASCEPT, December 2000, Newcastle.

Type: Poster presentation.

Consistency of proton pump inhibitor prescribing with guidelines: a multi-centre drug use evaluation study

Kylie Easton-Carter¹, Kaye KI², Judith Mackson³, M Robinson² and Brien JE¹ on behalf of the New South Wales Therapeutic Assessment Group (NSW TAG) Drug Utilisation Support Group

¹Faculty of Pharmacy, The University of Sydney, ²NSW TAG, ³National Prescribing Service Ltd, ⁴Gosford Hospital

Presented at: SHPA 2001.

Type: Poster presentation.

Multi-faceted strategies for improving use of medicines in Australia: antibiotics as a case study

Judith Mackson, Lynn Weekes

National Prescribing Service Ltd

Presented at: WONCA, May 2001, Durban, South Africa.

Type: Oral presentation.

Can a prescription database give us information about prescribing in general practice?

Using prescription data for educational feedback

Judith Mackson

National Prescribing Service Ltd

Presented at: WONCA, May 2001, Durban, South Africa.

Type: Workshop.

The grassroots development of indicators for quality prescribing in general practice

Margaret Fitzgerald, Lynn Weekes, Jenny Bowman

National Prescribing Service Ltd

Presented at: General Practice and Primary Health Care Research Conference, 31 May 2001 –1 June 2001

Type: Oral and poster presentation.

The National Prescribing Service: translating research into practice across Australia

Margaret Fitzgerald, Jenny Bowman, Melanie Kingsland

National Prescribing Service Ltd

Presented at: General Practice and Primary Health Care Research Conference, 31 May 2001 –1 June 2001

Type: Oral and poster presentation.

Clinical audit as a means of implementing new national guidelines for hypertension

Judith Mackson, Sheena O’Riordan, Lynn Weekes

National Prescribing Service Ltd

Presented at: 17th International Conference on Pharmacoepidemiology, August 2001, Vancouver.

Type: Poster presentation.

Evaluation of a multifaceted national program to improve prescribing – the antibiotics program

Jenny Bowman, Judith Mackson, Lynn Weekes

National Prescribing Service Ltd

Presented at: 17th International Conference on Pharmacoepidemiology, August 2001, Vancouver.

Type: Poster presentation.

Local programs for Quality Use of Medicines – building capacity for change

Judith Mackson, Jenny Bowman, Lynn Weekes

National Prescribing Service Ltd

Presented at: 1st Asia Pacific Forum on Quality Improvement in Health Care, September 2001, Sydney.

Type: Poster presentation.

Clinical audits as a vehicle for change in general practice and community pharmacy

Margaret Fitzgerald, Judith Mackson

National Prescribing Service Ltd

Presented at: 2001 A Public Health Odyssey, Popular Culture Science and Politics, 33rd Public Health Association of Australia, Annual Conference, 23-26 September 2001, Sydney.

Type: Poster presentation

Depression clinical audit: messages from clinical practice

Margaret Fitzgerald, Judith Mackson, Stephen Kerr, Tai Rotem

National Prescribing Service Ltd

Presented at: RACGP 44th Annual Scientific Convention & Annual General Meeting, 27 September – 1 October 2001, Sydney.

Type: Oral presentation

Local programs for quality use of medicines – building capacity for change

Judith Mackson, Jenny Bowman, Tina Tasioulas, Lynn Weekes

National Prescribing Service Ltd

Presented at: 1st Asia Pacific Forum on Quality Improvement in Health Care, September 2001, Sydney.

Type: Oral presentation.

Implementation of the National Prescribing Service (NPS) educational visiting program - from trials to national program

Judith Mackson¹, Debra Rowett², Lynn Weekes¹, Angela Wai¹, Frank May²

¹National Prescribing Service Ltd, ²Drug and Therapeutics Information Service (DATIS)

Presented at: 4th International Conference on the Scientific Basis of Health Services, 22-25 September 2001, Sydney.

Type: Oral presentation.

The National Prescribing Service (NPS) – quality improvement for quality use of medicines

Jenny Bowman, Judith Mackson, Lynn Weekes

National Prescribing Service Ltd

Presented at: 1st Asia Pacific Forum on Quality Improvement in Health Care, September 2001, Sydney.

Type: Poster presentation.

Case studies – a window on prescribing in general practice

Angela Wai, Judith Mackson, Lynn Weekes

National Prescribing Service Ltd

Presented at: RACGP 44th Annual Scientific Convention & Annual General Meeting, 27 September – 1 October 2001, Sydney.

Type: Oral presentation.

Using Clinical Audit to Identify and Change High Risk Non-Steroidal Anti-Inflammatory Drug Prescribing

Christopher Cutts^{1,2} and Adam LaCaze²

¹School of Pharmacy, University of Queensland, ²Queensland Rural Medical Support Agency

Presented at: The SHPA Conference, 25th November 2001, Canberra.

Type: Poster presentation.

Patterns of usage of Zyban®. The extent of use in patients at risk for interactions with antidepressants

Debra Rowett¹, Geoff P Sayer²

¹Drug and Therapeutics Information Service (DATIS), ²Health Communication Network

Presented at: The SHPA Conference, 25th November 2001, Canberra.

Type: Poster presentation.

A Clinical Audit of COX-2 Inhibitors Prescribing in Australian General Practice

Christopher Cutts

Quality Use of Medicines Advisor Queensland Rural Medical Support Agency and Conjoint Lecturer, School of Pharmacy, University of Queensland

Presented at: The SHPA Federal Conference, ,25th November 2001, Hobart.

Type: Oral presentation.

QUM, Clinical Pharmacists and Bush Doctors

Christopher Cutts^{1,2} Heather Volk¹ Adam LaCaze¹, Judy Hutchinson¹ and Susan Tett²

¹Queensland Rural Medical Support Agency (QRMSA); ²School of Pharmacy, University of Queensland

Presented at: The SHPA Federal Conference, ,25th November 2001, Hobart.

Type: Poster presentation.

Educational visits to doctors from the National Prescribing Service on management of hypertension.

Alicia Najbar-Kaszkiel^{1,2,3}, Susan Kloot¹, Kathryn De Garis²

¹Monash Division of General Practice, ²Central Bayside Division of General Practice, ³National Prescribing Service Ltd

Presented at: The Australian Society of Clinical & Experimental Pharmacologists & Toxicologists (ASCEPT), December 2001, Dunedin, New Zealand.

Type: Oral presentation.

Rapid uptake of COX-2 selective NSAIDs: general practitioner prescribing patterns in Australia

Stephen Kerr¹, Kevin McGeechan², Fiona Horn², Geoffrey Sayer², Andrea Mant³, introduced by Lynne McMartin¹

¹National Prescribing Service Ltd, ²Health Communication Network, ³South East Health and UNSW

Presented at: The Australian Society of Clinical & Experimental Pharmacologists & Toxicologists (ASCEPT), December 2001, Dunedin, New Zealand.

Type: Oral presentation.

National approach to drug use evaluation: Multicentre DUE projects funded by the NPS

Lynne McMartin¹ for the Education and QA Program

¹National Prescribing Service Ltd

Presented at: The Australian Society of Clinical & Experimental Pharmacologists & Toxicologists (ASCEPT), December 2001, Dunedin, New Zealand.

Type: Workshop

Antihypertensive prescribing in Australian general practice

Lynne McMartin, Sheena O'Riordan, Tai Rotem, Judith Mackson, Lynn Weekes

National Prescribing Service Ltd

Presented at: The Australian Society of Clinical & Experimental Pharmacologists & Toxicologists (ASCEPT), December 2001, Dunedin, New Zealand.

Type: Oral presentation.

The National Prescribing Curriculum

Buckley N A¹, Moulds R F W², Pillans P³, Shakib S⁴, Anthony Smith⁵, Tina Tasioulas T⁵

¹Clinical Pharmacology and Toxicology, The Canberra Hospital, ²Department of Medicine, Royal Melbourne Hospital and Western Hospital, ³Department of Medicine, Princess Alexandra Hospital, ⁴Clinical Pharmacology, Flinders Medical Centre, ⁵Education Working Group, National Prescribing Service Ltd

Presented at: The Australian Society of Clinical & Experimental Pharmacologists & Toxicologists (ASCEPT), December 2001, Dunedin, New Zealand.

Type: Oral presentation.

Promoting quality use of medicines in rural and remote Queensland

Christopher Cutts^{1,2}, Heather Volk¹, Adam LaCaze¹, Judy Hutchinson¹ and Susan Tett²

¹Queensland Rural Medical Support Agency (QRMSA); ²School of Pharmacy, University of Queensland

Presented at: AGPAL Quality in Practice, February 2002, Gold Coast.

Type: Oral presentation.

National Prescribing Service interventions to promote the quality use of COX-2-selective NSAIDs

Judith Mackson¹, Stephen Kerr¹, Craig Patterson¹, Andrea Mant²

¹National Prescribing Service Ltd, ²South East Health and UNSW

Presented at: The National Medicines Symposium 2002: Linking people, actions and policy for Quality Use of Medicines; 20 – 22 March 2002, Canberra, Australia.

Type: Poster presentation.

National Prescribing Service quality use of medicines activities at Monash & Central Bayside Divisions of General Practice

Alicja Najbar-Kaszkiel^{1,2,3}, Susan Kloot¹, Kathryn De Garis²

¹Monash Division of General Practice, ²Central Bayside Division of General Practice, ³National Prescribing Service Ltd

Presented at: The National Medicines Symposium 2002: Linking people, actions and policy for Quality Use of Medicines; 20 – 22 March 2002, Canberra, Australia.

Type: Poster presentation.

Clinical Audit: The Use of Hormone Replacement Therapy

Ann Winkle, Alicia Reid

Brisbane North Division of General Practice

Presented at: The National Medicines Symposium 2002: Linking people, actions and policy for Quality Use of Medicines; 20 – 22 March 2002, Canberra, Australia.

Type: Poster presentation.

A Hypothetical Presentation: Educational visiting is more academic than you think!

Heather Pym¹, Ann Winkle², Robyn Chester³, Linden Harper⁴

¹Melbourne DGP, ²Brisbane North DGP, ³Eastern Sydney DGP, ⁴St George DGP

Presented at: The National Medicines Symposium 2002: Linking people, actions and policy for Quality Use of Medicines; 20 – 22 March 2002, Canberra, Australia.

Type: Panel presentation.

It's better together

Anne Smail^{1,2}

¹Ballarat and District Division of General Practice. ²The Ballarat Division Pharmacy Alliance

Presented at: The National Medicines Symposium 2002: Linking people, actions and policy for Quality Use of Medicines; 20 – 22 March 2002, Canberra, Australia.

Type: Poster presentation.

A national picture of local action on quality use of medicines through NPS programs

Margaret Fitzgerald, John Mandryk, Judith Mackson

National Prescribing Service Ltd

Presented at: The National Medicines Symposium 2002: Linking people, actions and policy for Quality Use of Medicines; 20 – 22 March 2002, Canberra, Australia.

Type: Oral presentation.

A systems approach to enhancing delivery of a Quality Prescribing Program in the Canning Division of General Practice

Susan Upham

Canning Division of General Practice

Presented at: The National Medicines Symposium 2002: Linking people, actions and policy for Quality Use of Medicines; 20 – 22 March 2002, Canberra, Australia.

Type: Oral presentation.

Hormone Replacement Therapy: What's Hot What's Not. Lessons learnt from a GP Division's Program

Susan Upham, Lyn Todd, Stuart Gibb

Canning Division of General Practice

Presented at: The National Medicines Symposium 2002: Linking people, actions and policy for Quality Use of Medicines; 20 – 22 March 2002, Canberra, Australia.

Type: Poster presentation.

Bottoms Up! Increasing Program Participation with Group Medication Management Case Study Meetings

Tracey Hay, Mark Coles

Fremantle Regional GP Network

Presented at: The National Medicines Symposium 2002: Linking people, actions and policy for Quality Use of Medicines; 20 – 22 March 2002, Canberra, Australia.

Type: Poster presentation.

Quality Use of Medicines in Aged Care Facilities - a Regional Approach

Margaret Jordan

Illawarra Division of General Practice

Presented at: The National Medicines Symposium 2002: Linking people, actions and policy for Quality Use of Medicines; 20 – 22 March 2002, Canberra, Australia.

Type: Oral presentation.

Lunchtime Case Studies: the best recipe for accessing GPs

Julie Marr

Perth Central Coastal Division General Practice

Presented at: The National Medicines Symposium 2002: Linking people, actions and policy for Quality Use of Medicines; 20 – 22 March 2002, Canberra, Australia.

Type: Poster presentation.

Hormone Replacement Therapy Practice Visits Program

Jenny Elston

Central Highlands Division of General Practice

Presented at: The National Medicines Symposium 2002: Linking people, actions and policy for Quality Use of Medicines; 20 – 22 March 2002, Canberra, Australia.

Type: Poster presentation.

Quality of NSAID Information on the Internet

Andrew Case¹, Stephen Kerr²

¹Pharmacy School, University of Queensland, ²National Prescribing Service Ltd

Presented at: The National Medicines Symposium 2002: Linking people, actions and policy for Quality Use of Medicines; 20 – 22 March 2002, Canberra, Australia.

Type: Oral presentation.

Consumers, QUM and health: a powerful combination?

Sonia Wutzke¹, Miriam Fletcher¹, Denise Fry², Jan Donovan³, Justin Beilby⁴

¹National Prescribing Service Ltd, ²Pharmaceutical Health and Rational use of Medicines Committee;

³Consumers Health Forum, ⁴Department of General Practice, University of Adelaide

Presented at: The National Medicines Symposium 2002: Linking people, actions and policy for Quality Use of Medicines; 20 – 22 March 2002, Canberra, Australia.

Type: Poster presentation.

Indicators for monitoring the impact of the NPS.

Libby Roughhead¹, Sonia Wutzke², Lynn Weekes², Justin Beilby³

¹School of Pharmacy and Medical Sciences, University of South Australia, ²National Prescribing Service Ltd,

³Department of General Practice, University of Adelaide

Presented at: The National Medicines Symposium 2002: Linking people, actions and policy for Quality Use of Medicines; 20 – 22 March 2002, Canberra, Australia.

Type: Poster presentation.

Evaluation of the National Prescribing Service: where are we in 2002?

Sonia Wutzke¹, Jenny Bowman², John Mandryk¹, Justin Beilby³

¹National Prescribing Service Ltd; ²School of Behavioural Sciences, University of Newcastle, ³Department of General Practice, University of Adelaide

Presented at: The National Medicines Symposium 2002: Linking people, actions and policy for Quality Use of Medicines; 20 – 22 March 2002, Canberra, Australia.

Type: Oral presentation.

Grass roots in Geelong: Starting the National Prescribing Service Program in the Greater Geelong Region

Susan Stewart

GP Association of Geelong

Presented at: The National Medicines Symposium 2002: Linking people, actions and policy for Quality Use of Medicines; 20 – 22 March 2002, Canberra, Australia.

Type: Poster presentation.

A national picture of local action on quality use of medicines through NPS programs

Margaret Fitzgerald, John Mandryk, Judith Mackson

National Prescribing Service Ltd

Presented at: The National Medicines Symposium 2002: Linking people, actions and policy for Quality Use of Medicines; 20 – 22 March 2002, Canberra, Australia.

Type: Oral presentation.

A systems approach to enhancing delivery of a Quality Prescribing Program in the Canning Division of General Practice

Susan Upham

Canning Division of General Practice

Presented at: The National Medicines Symposium 2002: Linking people, actions and policy for Quality Use of Medicines; 20 – 22 March 2002, Canberra, Australia.

Type: Oral presentation.

Quality Use of Medicines in aged care facilities - a regional approach

Margaret Jordan

Illawarra Division of General Practice

Presented at: The National Medicines Symposium 2002: Linking people, actions and policy for Quality Use of Medicines; 20 – 22 March 2002, Canberra, Australia.

Type: Oral presentation.

A multi-centre drug use evaluation study of proton pump inhibitor prescribing.

K Kaye, Kylie Easton-Carter, Judith Mackson, M Robinson, Richard Day, J Brien on behalf of the NSW Therapeutic Assessment Group (NSW TAG) Drug Utilisation Evaluation Support Group.

Presented at: The National Medicines Symposium 2002: Linking people, actions and policy for Quality Use of Medicines; 20 – 22 March 2002, Canberra, Australia.

Type: Oral presentation.

National Prescribing Service Member Organisation Satisfaction Survey

Elana Huthnance, Jenny Bowman

National Prescribing Service Ltd

Presented at: The National Medicines Symposium 2002: Linking people, actions and policy for Quality Use of Medicines; 20 – 22 March 2002, Canberra, Australia.

Type: Poster presentation.

NPS pharmacy program

Louise Kenyon, Judith Mackson, Lynn Weekes

National Prescribing Service Ltd

Presented at: The National Medicines Symposium 2002: Linking people, actions and policy for Quality Use of Medicines; 20 – 22 March 2002, Canberra, Australia.

Type: Poster presentation.

Lessons from self-audit in Community Pharmacy

Louise Kenyon¹, Judith Mackson¹, Lilly Chong², Lynn Weekes¹

¹National Prescribing Service Ltd, ²Pharmaceutical Society of Australia (NSW Branch)

Presented at: The National Medicines Symposium 2002: Linking people, actions and policy for Quality Use of Medicines; 20 – 22 March 2002, Canberra, Australia.

Type: Oral presentation.

Case studies – a window on prescribing in general practice

Angela Wai¹, Jacqui Boyce¹, Judith Mackson¹, Lynn Weekes¹

¹National Prescribing Service Ltd

Presented at: The National Medicines Symposium 2002: Linking people, actions and policy for Quality Use of Medicines; 20 – 22 March 2002, Canberra, Australia.

Type: Oral presentation.

Current Status of Pharmaceutical Decision Support tools in Australia

Colleen Brooks¹, J Bergin², Y Allinson³, Stephen Kerr¹

¹National Prescribing Service Ltd, ²The Pharmacy Guild of Australia, ³The Society of Hospital Pharmacists of Australia

Presented at: The National Medicines Symposium 2002: Linking people, actions and policy for Quality Use of Medicines; 20 – 22 March 2002, Canberra, Australia.

Type: Oral presentation.

A Locally Delivered Integrated Quality Use of Medicines Program For Health Professionals in Rural Queensland

Christopher Cutts^{1,2} Heather Volk¹ Adam LaCaze¹ Judy Hutchinson¹ Karen Rees¹ Chris Mitchell¹

Rita D'Amore³ Danielle Stowasser³ and Sue Tett²

¹Queensland Rural Medical Support Agency (QRMSA), ²School of Pharmacy, University of Queensland,

³Queensland Health

Presented at: The National Medicines Symposium 2002: Linking people, actions and policy for Quality Use of Medicines; 20 – 22 March 2002, Canberra, Australia.

Type: Oral presentation.

Development of a Support Program for Dispensing Doctors in Rural Queensland

Christopher Cutts^{1,2}, [Adam LaCaze](#)¹ and Chris Mitchell¹

¹Queensland Rural Medical Support Agency, ²School of Pharmacy, University of Queensland

Presented at: The National Medicines Symposium 2002: Linking people, actions and policy for Quality Use of Medicines; 20 – 22 March 2002, Canberra, Australia.

Type: Oral presentation.

Common colds, common sense – Multicultural style

Diane Bailey, Stuart Gibb

Perth Division of General Practice

Presented at: The National Medicines Symposium 2002: Linking people, actions and policy for Quality Use of Medicines; 20 – 22 March 2002, Canberra, Australia.

Type: Poster presentation.

Quality Use of Medicines: Improving Prescribing of Drugs of Dependency and Minimising Doctor Shopping

Andrea Lloyd¹, Gary Stutsel², Tricia Friend³, Dr Mary Kearney⁴

¹NPS Program Officer, South Eastern Sydney Division of General Practice, ²HIC Pharmacist, Professional Review Branch, ³HIC Doctor Shopping Taskforce, ⁴Professional Review Branch

Presented at: The National Medicines Symposium 2002: Linking people, actions and policy for Quality Use of Medicines; 20 – 22 March 2002, Canberra, Australia.

Type: Poster presentation.

Desktop Data Collection – The Road to Quality Use of Medicines

Merrilyn Amiet, Carly Clutterbuck, Deborah Bishop

Mackay Division of General Practice Ltd

Presented at: The National Medicines Symposium 2002: Linking people, actions and policy for Quality Use of Medicines; 20 – 22 March 2002, Canberra, Australia.

Type: Poster presentation.

Quality Use of Medicine - Making Sense for Seniors

Christine Staples

Port Macquarie Division of General Practice

Presented at: The National Medicines Symposium 2002: Linking people, actions and policy for Quality Use of Medicines; 20 – 22 March 2002, Canberra, Australia.

Type: Poster presentation.

Implementation of the National Prescribing Service (NPS) educational visiting program - from trials to national program

[Judith Mackson](#)¹, Debra Rowett², Lynn Weekes¹, Angela Wai¹, Frank May².

¹National Prescribing Service Ltd, ²Drug and Therapeutics Information Service (DATIS)

Presented at: The National Medicines Symposium 2002: Linking people, actions and policy for Quality Use of Medicines; 20 – 22 March 2002, Canberra, Australia.

Type: Poster presentation.

The Use of Benzodiazepines in the Management of Insomnia

Suzanne White

Southern Division of General Practice

Presented at: The National Medicines Symposium 2002: Linking people, actions and policy for Quality Use of Medicines; 20 – 22 March 2002, Canberra, Australia.

Type: Poster presentation.

North West Melbourne Division's National Prescribing Service Activities

Ralph Audehm, Khin Zaw Aung

North West Melbourne Division of General Practice Ltd

Presented at: The National Medicines Symposium 2002: Linking people, actions and policy for Quality Use of Medicines; 20 – 22 March 2002, Canberra, Australia.

Type: Poster presentation.

Small Group Case Study Responses on Treatment of Hypertension by General Practitioners in the Bundaberg District

Natalii Paczkowski¹

Bundaberg & District Division of General Practice

Presented at: The National Medicines Symposium 2002: Linking people, actions and policy for Quality Use of Medicines; 20 – 22 March 2002, Canberra, Australia.

Type: Poster presentation.

Identification of Influences on the Quality Use of Medicines in Rural Australia

Christopher Cutts, Susan Tett

School of Pharmacy, University of Queensland

Presented at: The National Medicines Symposium 2002: Linking people, actions and policy for Quality Use of Medicines; 20 – 22 March 2002, Canberra, Australia.

Type: Oral presentation.

Celecoxib and Rofecoxib prescribing by Australian GPs: Informing National Prescribing Service interventional strategies

Stephen Kerr¹, Kevin McGeechan², Fiona E Horn², Geoff P Sayer², Andrea Mant²

¹National Prescribing Service Ltd, ²Health Communication Network, ³South East Health and UNSW

Presented at: The National Medicines Symposium 2002: Linking people, actions and policy for Quality Use of Medicines; 20 – 22 March 2002, Canberra, Australia.

Type: Oral presentation.

Rapid uptake of new drugs in patients at risk of adverse effects – the extent of concomitant use of bupropion (Zyban) and antidepressants

Debra Rowett¹, Geoff P Sayer²

¹Drug and Therapeutics Information Service (DATIS), ²Health Communication Network

Presented at: The National Medicines Symposium 2002: Linking people, actions and policy for Quality Use of Medicines; 20 – 22 March 2002, Canberra, Australia.

Type: Poster presentation.

Training in social marketing for academic detailers in Australia – building a national field force.

Andrea Mant¹, Debra Rowett², Peter Harris, Frank May², Tina Tasioulas, Gaby Trijbetz, Rebecca Findlow

¹South East Health and UNSW, ²Drug and Therapeutics Information Service (DATIS), ²Health Communication Network

Presented at: The National Medicines Symposium 2002: Linking people, actions and policy for Quality Use of Medicines; 20 – 22 March 2002, Canberra, Australia.

Type: Poster presentation.

Using clinical audit to improve antihypertensive prescribing in general practice

Sheena O'Riordan, Judith Mackson, Tai Rotem T, Stephen Kerr S, Lucy White, Lynn Weekes

National Prescribing Service Ltd

Presented at: The National Medicines Symposium 2002: Linking people, actions and policy for Quality Use of Medicines; 20 – 22 March 2002, Canberra, Australia.

Type: Oral presentation.

The National Prescribing Service Therapeutic Advice and Information Service (NPS TAIS) - the first year

Treasure McGuire, Jane Carpenter, Felicity Prior, Debra Rowett, Helen Trenerry, Graeme Vernon
Australian Consortium of Drug Information Services, Mater Health Services, South Brisbane

Presented at: The National Medicines Symposium 2002: Linking people, actions and policy for Quality Use of Medicines; 20 – 22 March 2002, Canberra, Australia.

Type: Oral presentation.

NPS Antibiotic Education Program for health professionals and consumers

Judith Mackson

National Prescribing Service Ltd

Presented at: The National Medicines Symposium 2002: Linking people, actions and policy for Quality Use of Medicines; 20 – 22 March 2002, Canberra, Australia.

Type: Oral presentation.

Quality care through better understanding

Michel Maalouf

Westgate Division of General Practice.

Presented at: The National Medicines Symposium 2002: Linking people, actions and policy for Quality Use of Medicines; 20 – 22 March 2002, Canberra, Australia.

Type: Oral presentation.

Hot metal to hot keys – the Australian Prescriber web site

John Dowden, Susan Reid

National Prescribing Service Ltd

Presented at: The National Medicines Symposium 2002: Linking people, actions and policy for Quality Use of Medicines; 20 – 22 March 2002, Canberra, Australia.

Type: Poster presentation.

Travelling Pharmacist - Taking Clinical Pharmacy Services to Rural and Remote Communities

Heather Volk, Christopher Cutts

Volk Pharmacy Services, Queensland Rural Medical Support Agency (QRMSA)

Presented at: The National Medicines Symposium 2002: Linking people, actions and policy for Quality Use of Medicines; 20 – 22 March 2002, Canberra, Australia.

Type: Poster presentation.

National Prescribing Service Educational Visiting Programs delivered by the Drug and Therapeutics Information Service: Management of Depression in General Practice

Debra Rowett, Frank May, Jody Braddon, Tania Colarco, Louise Quinn, Tricia Warrick, Joy Gailer, Ruth Wilton, Susan Edwards

Drug and Therapeutics Information Service (DATIS)

Presented at: The National Medicines Symposium 2002: Linking people, actions and policy for Quality Use of Medicines; 20 – 22 March 2002, Canberra, Australia.

Type: Poster presentation.

Local collaboration to enhance the uptake of National Prescribing Service educational visiting programs in rural Divisions of General Practice

Paul Bennett, Debra Rowett, Trish Testow, Tricia Warrick, Tania Colarco, Louise Quinn, Frank May
Drug and Therapeutics Information Service (DATIS)

Presented at: The National Medicines Symposium 2002: Linking people, actions and policy for Quality Use of Medicines; 20 – 22 March 2002, Canberra, Australia.

Type: Poster presentation.

Provision of NPS materials to remote primary health care professionals

Frances Vaughan

Central Australian Division of Primary Health Care

Presented at: The National Medicines Symposium 2002: Linking people, actions and policy for Quality Use of Medicines; 20 – 22 March 2002, Canberra, Australia.

Type: Poster presentation.

GP / Pharmacy liaison

Debbie Norton

West Vic Division of General Practice

Presented at: The National Medicines Symposium 2002: Linking people, actions and policy for Quality Use of Medicines; 20 – 22 March 2002, Canberra, Australia.

Type: Poster presentation.

Using Clinical Audit to Identify and Change Prescribing by Rural General Practitioners

Christopher Cutts^{1,2}, Adam LaCaze¹, Chris Mitchell¹

¹Queensland Rural Medical Support Agency, ²School of Pharmacy, University of Queensland

Presented at: WONCA, April 2002.

Type: Poster presentation.

Development of a Support Program for Dispensing Doctors in Rural Queensland

Christopher Cutts^{1,2}, Adam LaCaze¹ and Chris Mitchell¹

¹Queensland Rural Medical Support Agency, ²School of Pharmacy, University of Queensland

Presented at: WONCA, April 2002.

Type: Poster presentation.

A pilot project to monitor drug product promotion by the pharmaceutical industry to general practitioners

Judith Mackson

National Prescribing Service Ltd

Presented at: 2002 GP & PHC Research Conference, 31 May 2002, Melbourne.

Type: Poster presentation.

Completing the Clinical Audit Cycle on the Management of Hypertension: QUM in practice

Lucy White¹, Stephen Kerr², Colleen Brooks², Judith Mackson²

¹School of Pharmacy, University of Queensland, ²National Prescribing Service Ltd

Presented at: The Australian Pharmaceutical Science Association Annual Conference 2001, 9-12 December 2001, Melbourne, Australia.

Type: Poster presentation.

National Prescribing Service and Australian Rheumatology Association clinical audit: Safety monitoring for disease-modifying anti-rheumatic drugs

Lynne McMartin¹, Gabor AC Major², Susan Ashcroft¹, Margaret Fitzgerald¹, Judith Mackson¹

¹National Prescribing Service Ltd, ²Australian Rheumatology Association

Presented at: The National Medicines Symposium 2002: Linking people, actions and policy for Quality Use of Medicines; 20 – 22 March 2002, Canberra, Australia.

Type: Oral presentation.

Appendix 3

**Preliminary analysis of antibiotic prescribing rates
using aggregate data from the HIC website**

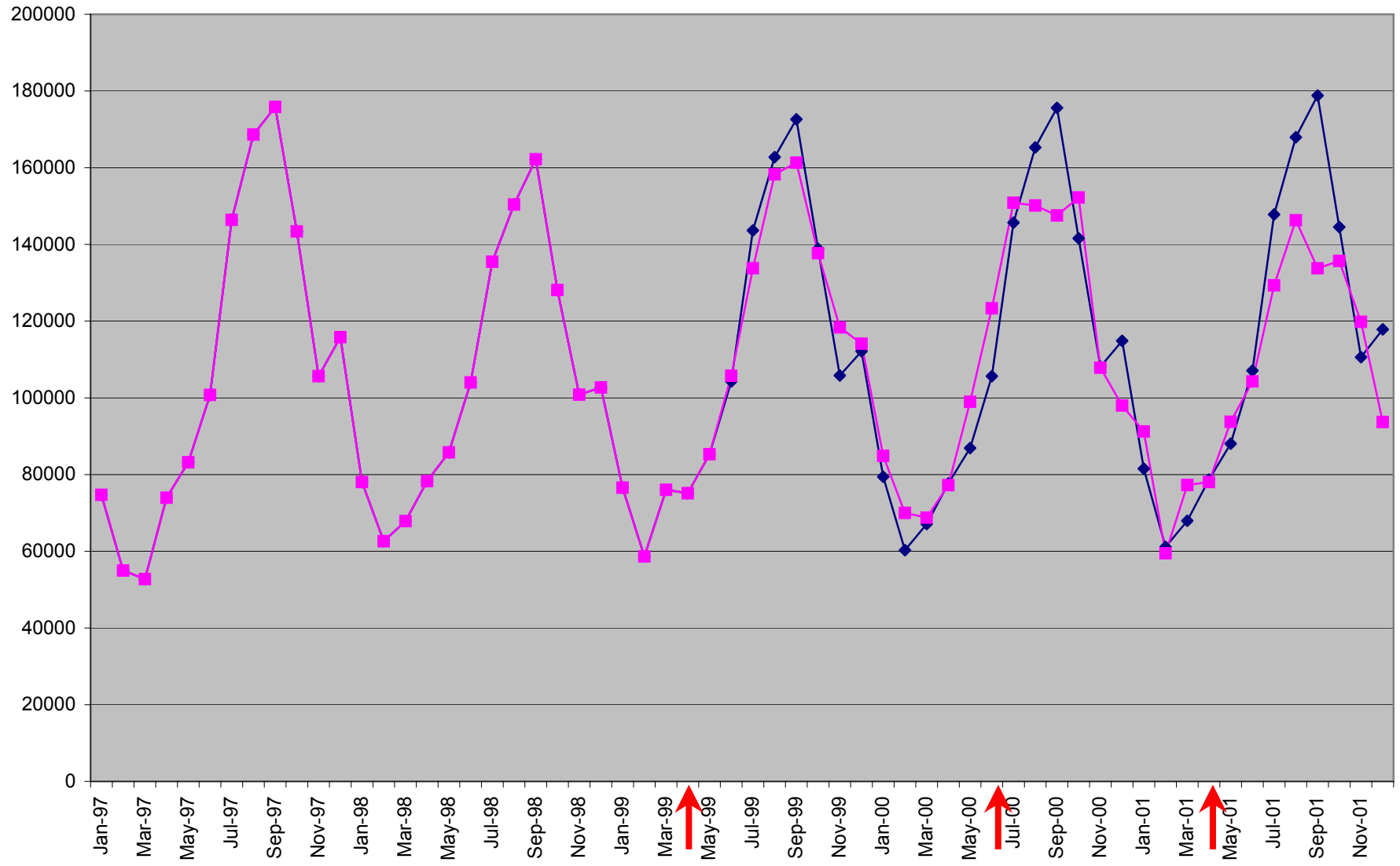
Data Extract Source	HIC website
Patient Type	PBS
Date range	January 1997 to December 2001
Product Search	PBS codes provided by NPS for 7 drug groups (confirmed with current online PBS schedule for accuracy), 10 penicillin, 7 amoxicillin, 4 cefaclor, 1 cefuroxime, 2 clarithromycin, 3 roxithromycin and 6 amoxicillin/clavulanic acid product codes.
Specific PBS codes related to intervention (list with commas separating)	Penicillin V = (1786B,1787C,3028J,1789E,2965C,1702N,1703P,1705R,2356B,2354X) Amoxicillin = (1884E,1889K,1883D,1878W,1888J,1886G,1887H,15294,15507) cefaclor = (1169M,1155T,2460L,2461M) cefuroxime = 8292K, clarithromycin = (14956,8318T), amoxicillin+clavulanic acid = (1890L,1891M,8254K,1892N,8319W,1893P), roxithromycin = (1760P,8016X,8129W) Total = (1786B,1787C,3028J,1789E,2965C,1702N,1703P,1705R,2356B,2354X,1884E,1889K,1883D,1878W,1888J,1886G,1887H,15294,15507,1048E,2671N,1399P,1402T,1400Q,1404X,2750R,1401R,1403W,2499M,2423M,2424N,2428T,2425P,2610J,1760P,8016X,8129W,2949F,2951H,3103H,3058Y,3119E)
Context (detailed description of the intervention and how it was expected to influence drug prescribing)	Track all oral antibiotic use from 12 months before first intervention in April 1999 to present. Expect decrease in total use over time. Expect more effect on winter peaks in utilisation than other seasons. Expect ratio of amoxicillin and penicillin V to increase compared with cefaclor, amoxicillin/clavulanate, roxithromycin, clarithromycin, cefuroxime. There were messages specifically for amoxicillin, penicillin V, cefaclor, amoxicillin+clavulanic acid, roxithromycin and cefuroxime.
Date of NPS Interventions	April 1999, June 2000, April 2001

 Bold arrows indicate NPS intervention

Note: Remember lag effect of both the reported HIC data and the intervention itself on the timelines.

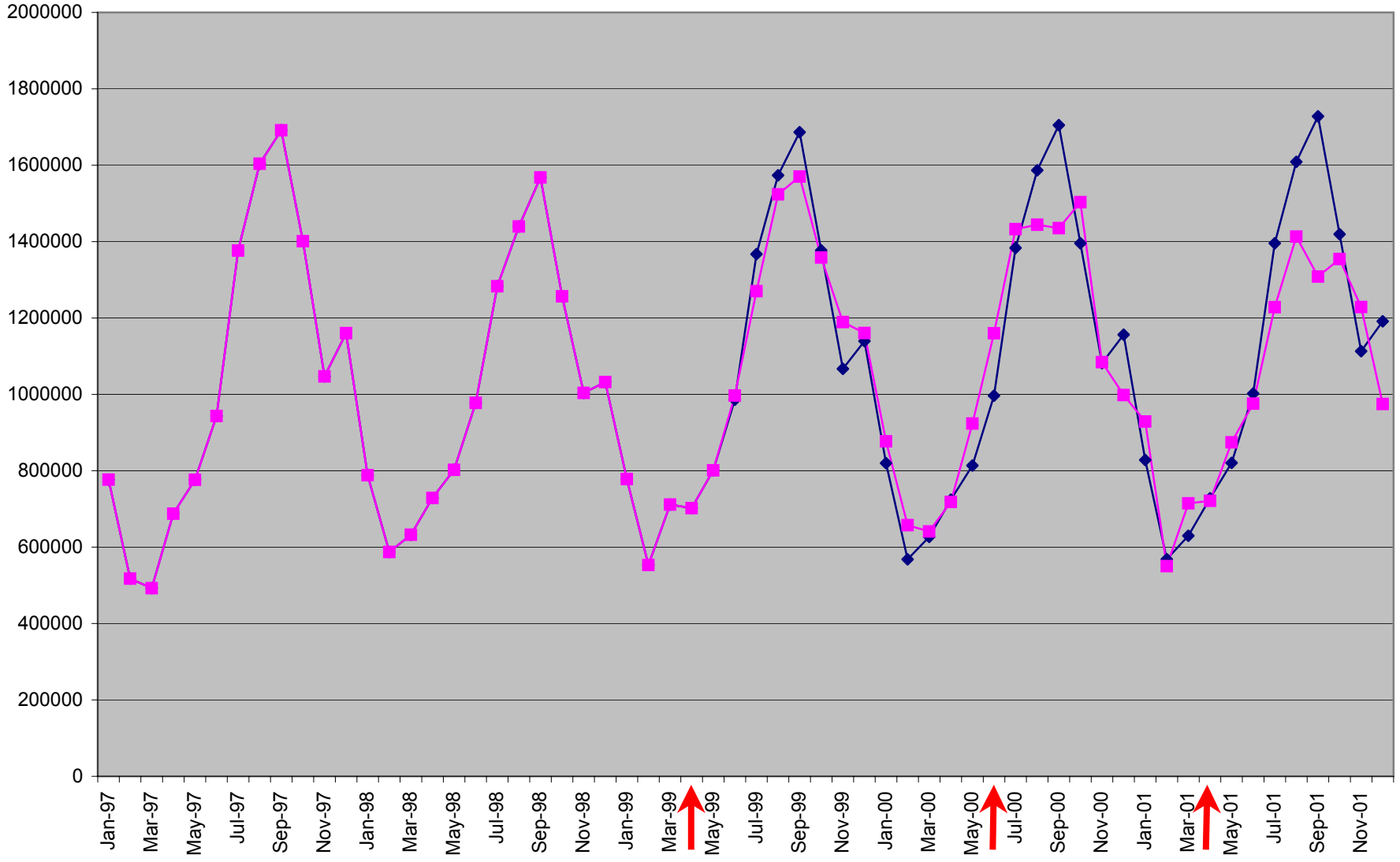
Forecast vs Actual Services - Roxithromycin

◆ ForROXserv ■ actROXserv



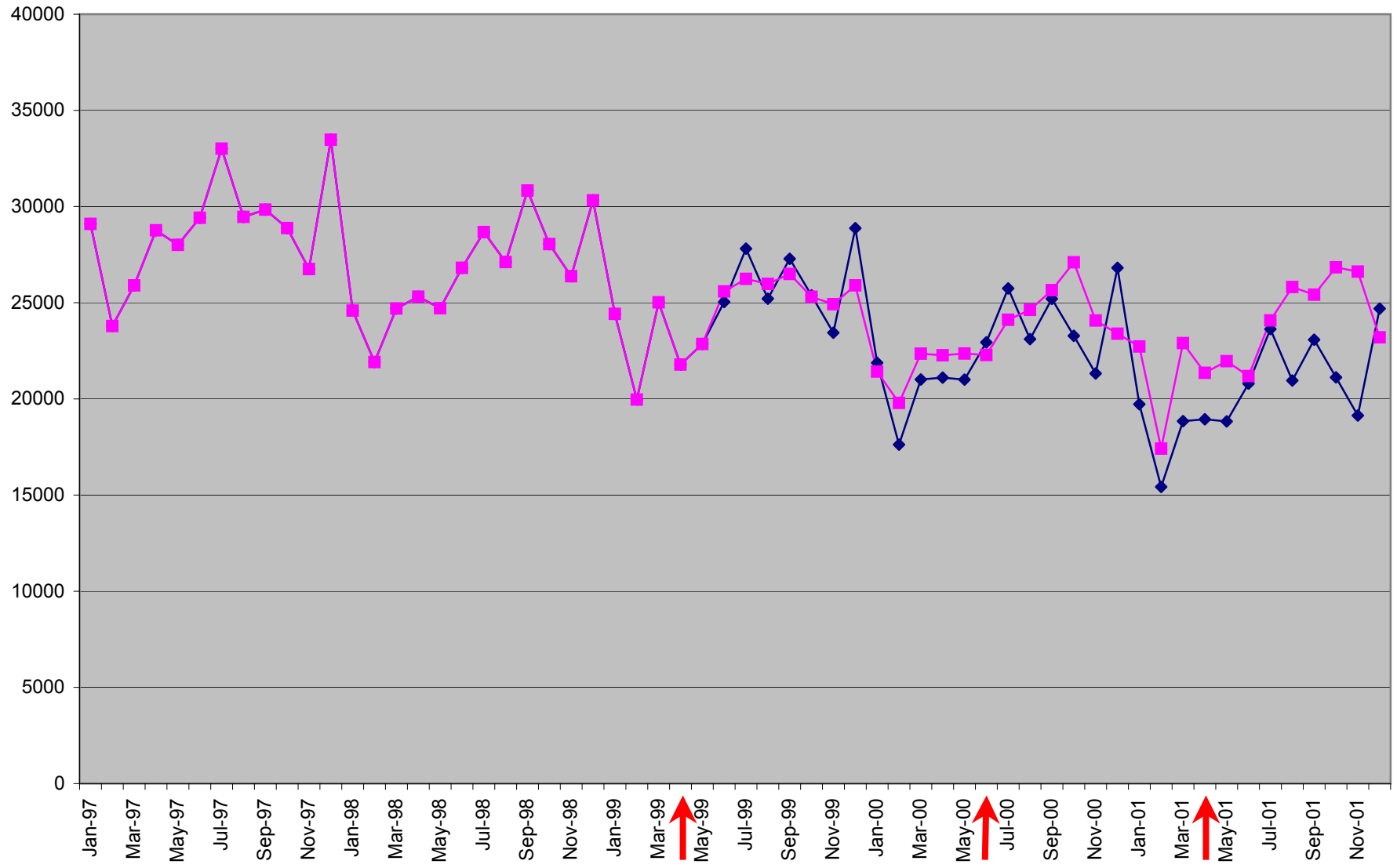
Forecast vs Actual Benefit - Roxithromycin

◆ forROX\$ ■ actROX\$



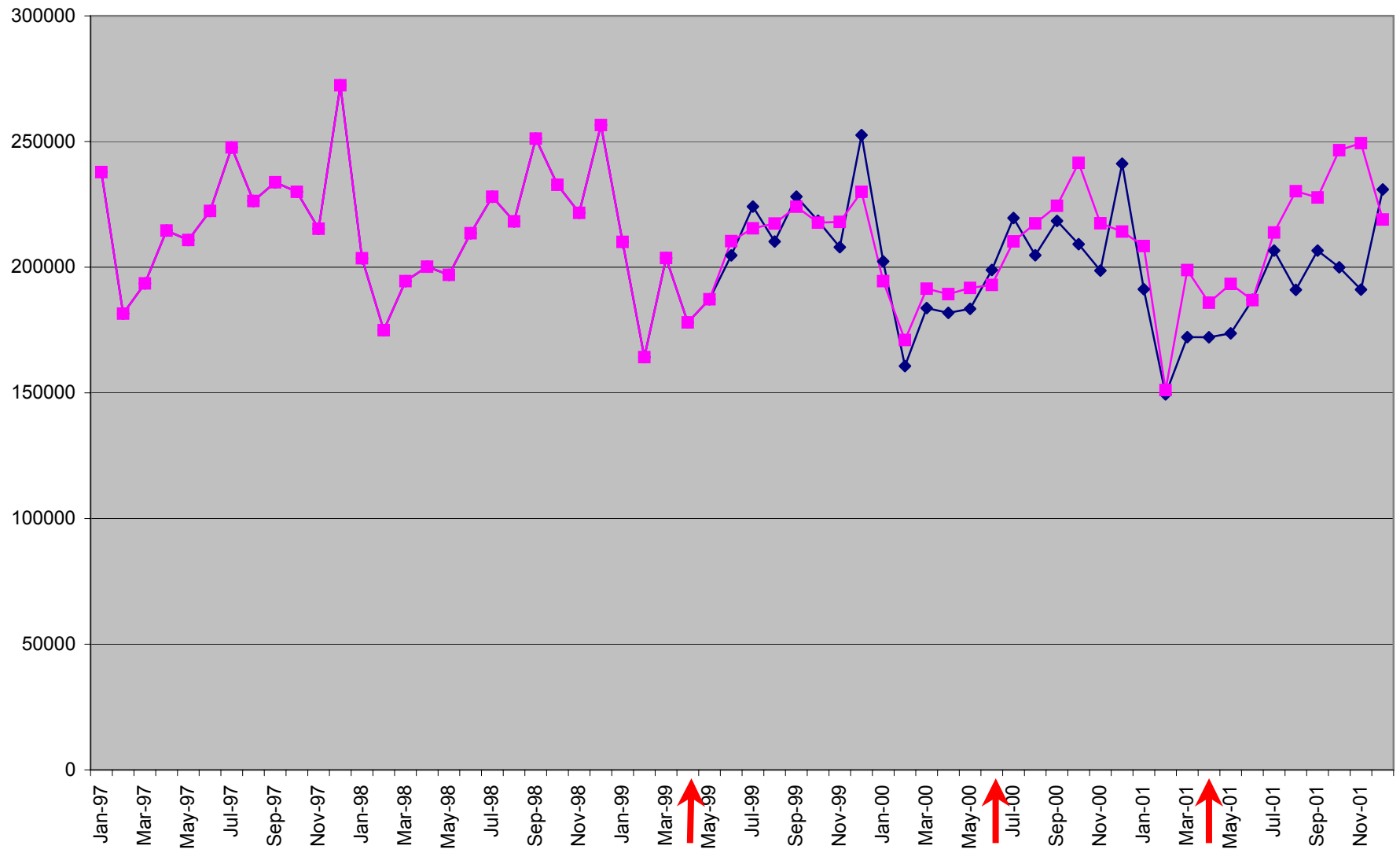
Forecast vs Actual Services - Penicillins

◆ ForPENServ ■ actPENserv



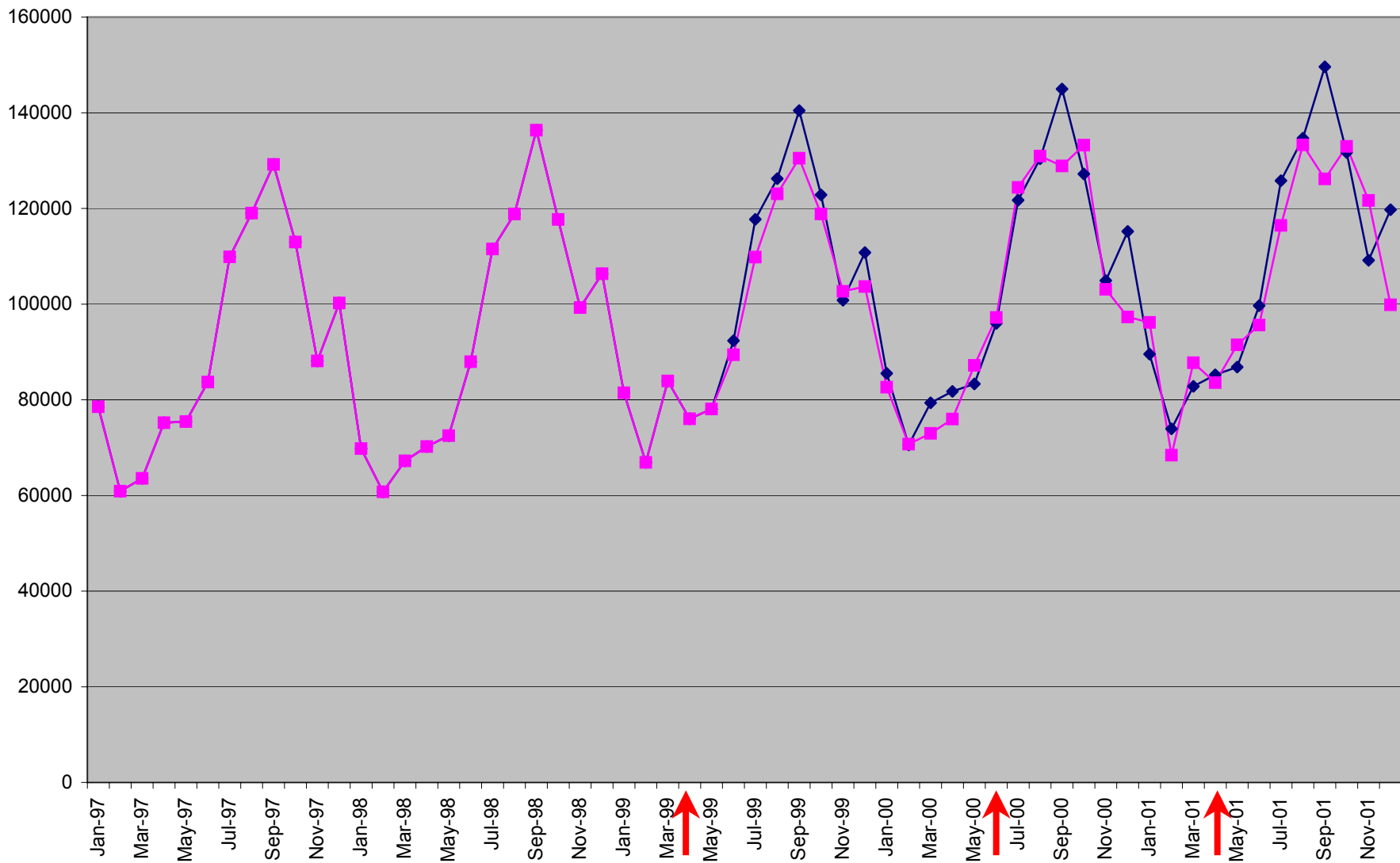
Forecast vs Actual Benefit - Penicillins

◆ forPEN\$ ■ actPEN\$



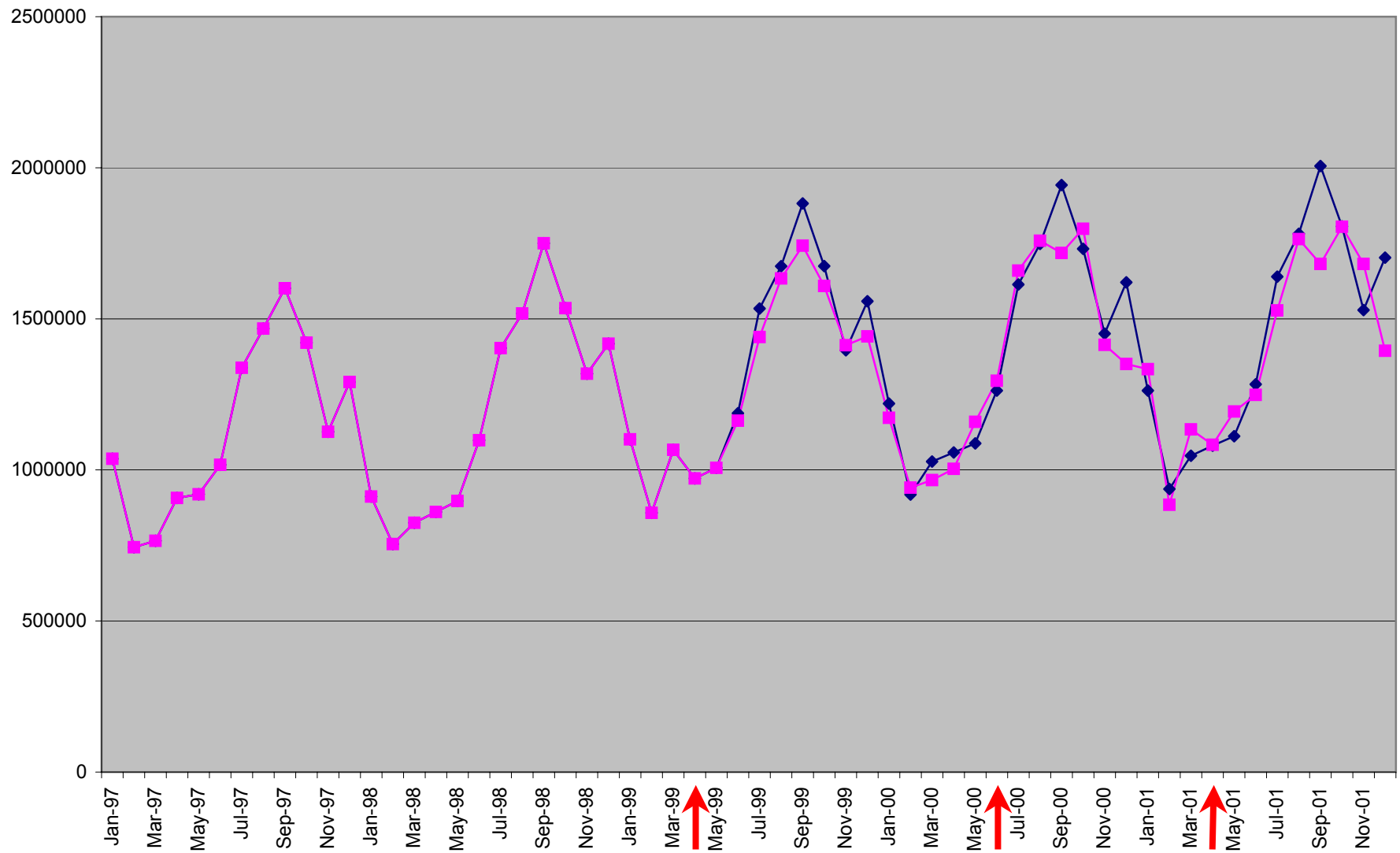
Forecast vs Actual Services - Amoxicillin / Clavulanic Acid

◆ ForAUGServ ■ actAUGserv



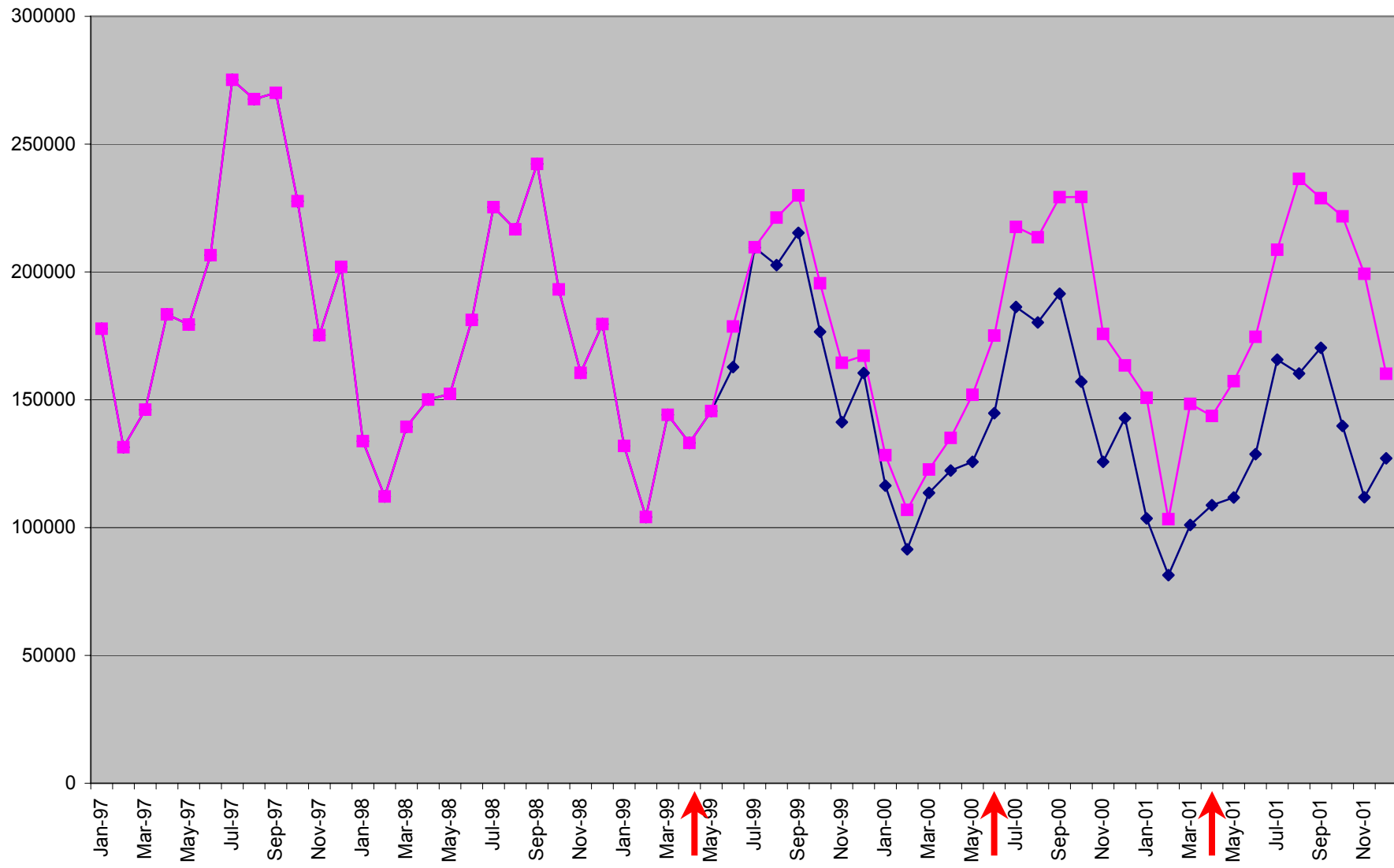
Forecast vs Actual Benefit - Amoxicillin / Clavulanic Acid

◆ forAUG\$ ■ actAUG\$



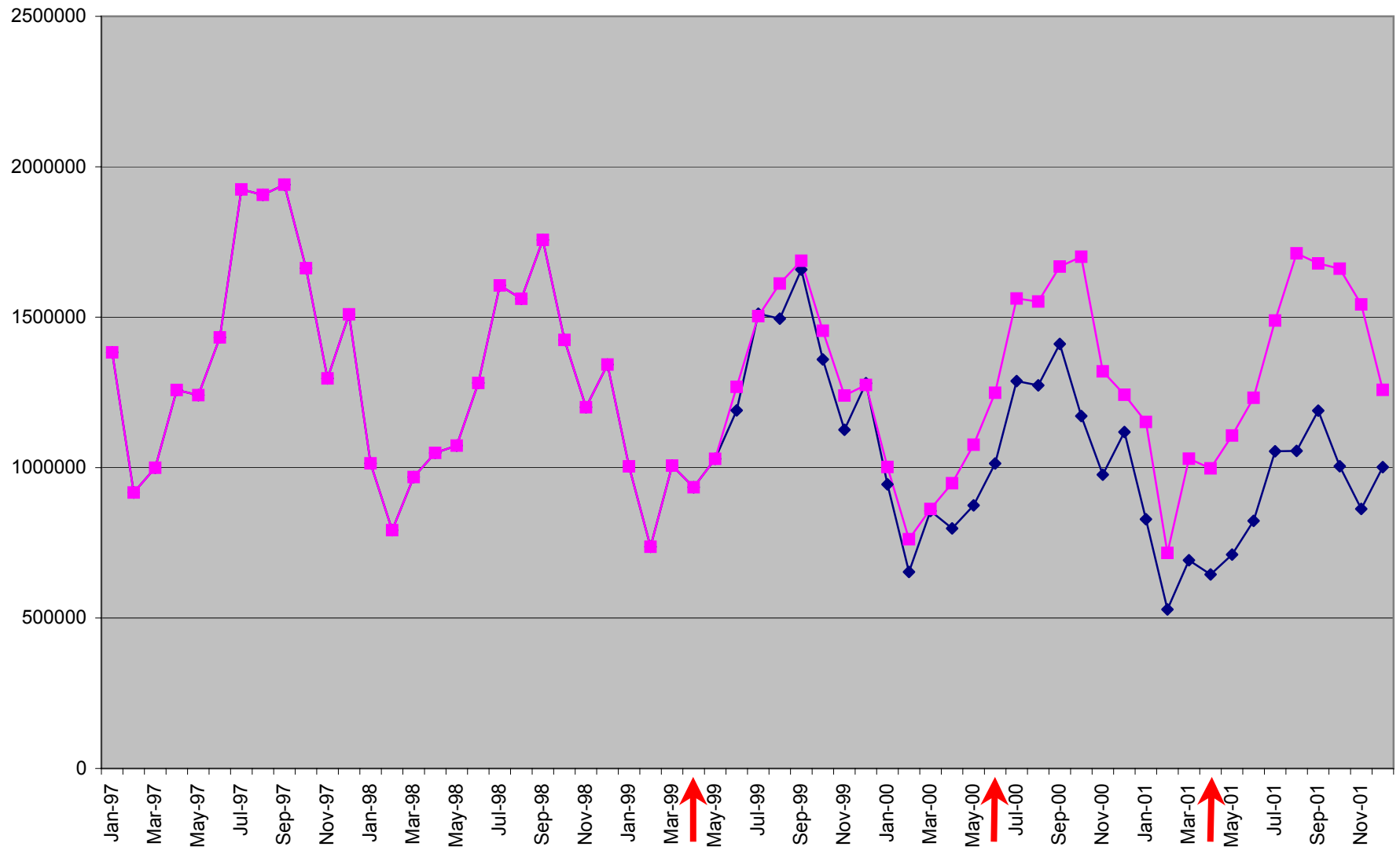
Forecast vs Actual Services - Amoxicillin

◆ ForAMXServ ■ actAMXserv



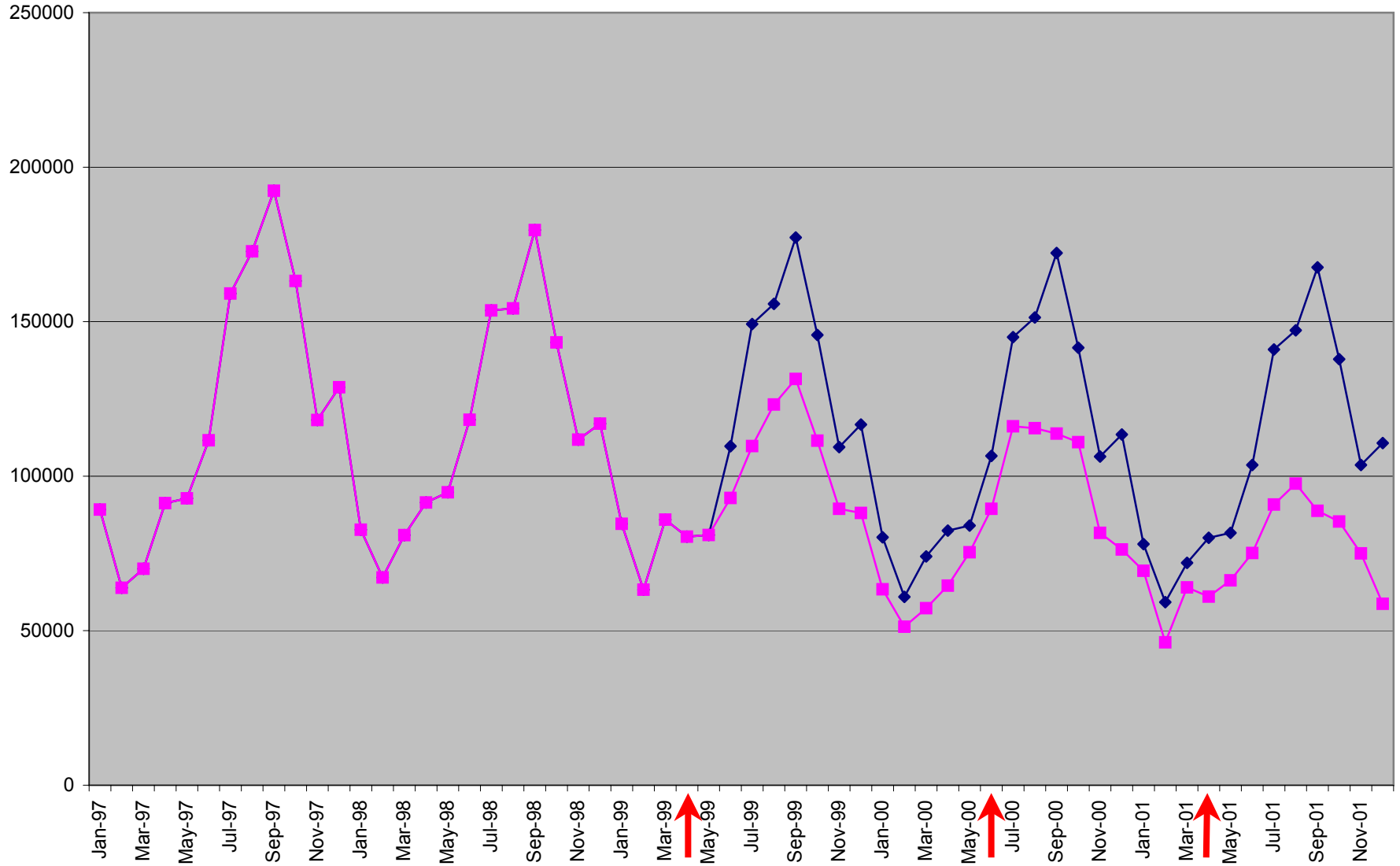
Forecast vs Actual Benefit - Amoxicillin

forAMX\$ actAMX\$



Forecast vs Actual Services - Cefactor

◆ ForCEFServ ■ actCEFServ



Forecast vs Actual Benefit - Cefactor

forCEF\$ actCEF\$

